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REPORT

ON THE

PRESENT STATE OF OUR KNOWLEDGE

WITH REGARD TO

THE MOLLUSCA

OF THE

WEST COAST OF NORTH AMERICA.

BY

PHILIP P. CARPENTER.

[*From the* REPORT OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF
SCIENCE *for* 1856.]

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H. E.

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THIS DAY

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LIST OF PLATES.

PLATES VI., VII., VIII., IX. are designed to illustrate variations of form between individuals of the same species, observed in comparing large numbers of specimens from the Reigen Collection of Mazatlan Shells: *vide* Report, pp. 241-264.

PLATE VI.

- Fig. 1.* Three adult specimens of *Arca grandis*, Brod. & Sby., laid on the same hinge-line: *n*, normal state; *e*, elongated; *o*, obese.
- Fig. 2.* The same specimens in profile.
- Fig. 3.* Two young specimens, showing that the changes of form are not merely the result of circumstances of growth: *e*, elongated; *t*, transverse.
- Fig. 4.* The same specimens in profile. The *A. æquilatera*, Sby., is probably the young of this species. It has been selected from a group usually constant in its characters; the nestling Byssosarks being notoriously irregular.

PLATE VII.

- Fig. 1 a.* *Cyrena Mexicana*, Brod. & Sby. Two young specimens laid together at the left angle between the dorsal margin and the umbo: *n*, normal; *e*, elongated. In this state it forms part of *C. Floridana*, Desh. MS., non Contr.
- Fig. 1 b.* Four specimens, similarly placed, adult: *n*, the largest shell, normal shape; *e*, elongated; *r*, rounded; *a*, an extreme form, described by Dr. Gould as *C. altilis*. The *Cyrenæ* are generally very regular shells.
- Fig. 2.* Two specimens of *Avicula sterna*, Gould: the black line, normal; the dotted line, with the characteristic tail almost evanescent, while the upper ears are enormously developed.
- Fig. 3.* *Gadinia pentagoniostoma*, Sby.: *a*, normal state, round, margin deeply crenate, ribs deeply grooved internally; these characters pass away more or less in the other specimens; *b*, with one corner; *c*, with two corners; *d*, with three corners; *e*, with four corners; *f*, with five corners; *g*, with six corners obscurely marked.
- Fig. 4.* *Glyphis inæqualis*, Sby., including *Fissurella pica*, Sby., and *F. mus*, Rve.: *a*, extreme form, type of *F. inæqualis*, oblong, with faint sculpture, shown at *a'*, and trilobed hole; *b*, lobes of hole evanescent; *c*, form *F. mus*; *d*, type of *F. pica*, oval, with rounded hole and strong sculpture shown at *d'*; *e, f, g, h, i, k, l, m, n*, internal views of the hole and callosity, magnified, showing the great changes of form, and the development or absence of the posterior truncation and pit. This, with an oval hole, are considered generic characters by Messrs. H. & A. Adams: *vide* Gen. vol. i. p. 447 (as *Lucapina*, but not of Gray, except *L. crenulata*).

Fig. 5. *Fissurella rugosa*, Sby., including *F. chlorotrema*, Mke., *F. humilis*, Mke., and *F. viminea*, Mke. non Rve.: *a*, finely grown, with faint, flattened, smooth ribs, and trilobed hole; *b*, normal state, ribs faint, hole suboval; *c*, specimen of irregular growth, normal outline when young, ribs stronger; *d*, specimen with ribs on the upper portion strongly developed; *e*, specimen of coarse growth, ribs nodulous; *f*, extreme form, from which the species was described, ribs very strong and irregular. The colour varies from uniform green to nearly uniform red; the young shells being generally green with a red patch. *g, h, i, k*, interior sketches of hole and callosity. The shape of the hole is generally a very constant character in *Fissurellidæ*.

PLATE VIII.

Fig. 1. Development and varieties of *Crepidula nivea*, C. B. Ad., including *Calyptræa squama*, Brod., *Calyptræa Lessonii*, Brod., and *Crepidula striolata*, Mke. (= *Crypta nivea*, *Ianacus squama*, and *Ianacus Lessonii*, H. & A. Ad.): *a*, inside view of very young specimen, deck just forming; *b*, ditto, a stage older; *c*, ditto, older, less magnified, anterior sinus not developed (*Crypta*, H. & A. Ad.); *d*, external view, showing prominent, ribbed apex; *e*, another specimen, rayed (*squama*, Brod.); *f*, group of deck-margins, the horizontal line representing the medial point; the two to the right are young, magnified; the rounding of the outline and development of the anterior sinus, made of subgeneric importance by Messrs. Adams, here appear extremely variable; *g*, a normal specimen, margin sharp; *h*, the same indented by attachment to a *Strombus granulatus*; *i*, margin in layers, flattened, abnormally thickened near the umbo; *j*, outside view, form *striolata*, the layers beginning to appear separate outside; *k*, layers here and there prominent, form *Lessonii*, shell concentrically striated, and with colour rays as in *e*; *l*, an abnormally bilobed specimen, form *Lessonii*; *m*, a specimen abnormally costated, by attachment to a ribbed shell; *n*, inside view of two specimens, laid with the deck-margin to correspond, to show the great length of deck in the lined specimen, and its shortness in the dotted one; *o*, two specimens similarly laid, one long and straight, the other rounded and semispiral, like *Crepidatella*, H. & A. Ad.; the long specimen has grown in the burrow of a *Lithophagus*, and displays margin-layers at the umbonal region, and one Lessonioid lamina in front; *p*, profile of the last-named specimen, with deck prominent, and back somewhat indented, as in *C. explanata*, Gld.

Fig. 2. Young state of *Crepidula unguiformis*, Lam. (*Ianacus*, H. & A. Ad.), to compare with the last species, which it closely resembles when adolescent: *a*, inside view, showing large imbedded spiral portion; *b*, outside, showing flattened, smooth spire.

Fig. 3. *Crepidula aculeata*, Gmel., including *Calyptræa echinus*, Brod., *Calyptræa hystrix*, Brod., *Crepidula Californica*, Nutt., and probably *Crepidula costata*, Mke. (not Sby.), subgenus *Crepidatella*, H. & A. Ad.: *a*, young state, like *Neritina*, deck just commencing; *b*, ditto, a stage older; *c*, the same in profile; *d*, ditto, somewhat older; *e*, ditto, a little older; *f*, outside view, older, showing spiral growth, margin not produced, spines just appearing; *g*, a group of deck-margins, arranged as in fig. 1 *f*, the three to the right being magnified; the second from the left is the normal state; in the first, not only the characteristic medial angle is rounded off, but an abnormal angle appears, turned the wrong way; *h*, two specimens, outside view, to show straight and spiral growth, as in fig. 1 *o*; *i*, two specimens, laid with the upper margins corresponding, to show disproportionate length of deck; the short deck belongs to the dotted margin; *j*, two specimens in profile; one arched, with deck internal; the other (dotted) flat, with deck prominent.

Fig. 4. *Lophyrus articulatus*, Sby.: *a*, front profile of a specimen abnormally trilobed; the dotted line shows the same profile of an elevated specimen; *b*, terminal valves of two specimens, one with inner margin incurved, the other excurved; *c*, medial valves of two specimens, one much waved, the other nearly straight. These characters are much dwelt on by Middendorff in the discrimination of species.

Fig. 5. A monstrosity of *Fissurella virescens*, Sby., inside view, with a circular hole in addition to the normal one.

PLATE IX.

Fig. 1. *Crucibulum imbricatum*, Sby., Brod., Desh. = *Patella scutellata*, Wood, = *Calypeopsis rugosa*, Less. non Desh.: including the non-pitted form, *Dyspotæa dentata*, Mke. = *Calyptrea ? extintorium*, Sby. non Lam. = *Calyptrea rugosa*, Val., Rve., non Desh.: showing development. *a*, fry, magnified, outside view; *b*, ditto, inside, shell like *Narica*, with umbilical chink, slight columellar lip, and a thin film of patelliform margin surrounding the whole; *c*, young state, slightly magnified, cup much expanded; in this state it appears to belong to the subgenus *Dispotæa* (Say) of H. & A. Ad.; *d*, ditto, outside view, ribs scarcely indicated; *e*, adolescent, ribs strongly developed, cup-angle narrower; *f*, a stage nearer maturity, cup-margins nearly closed; *g*, adult state.

Fig. 2. *Crepidula ? dorsata*, Brod., var. *bilobata*, nearly adult (*Crepipatella dorsata*, H. & A. Ad.) to compare with fig. 1 *c* and 3 *a*.

Fig. 3. *Crucibulum spinosum*, Sby., = *Patella Peziza*, Wood, = *Calyptrea tubifera*, Less., = *Calypeopsis auriculata*, D'Orb. non Chemn.; including *Calypeopsis tenuis*, *C. hispida*, and *C. maculata*, Brod. The *C. quiriquina*, Less. = *C. Byronensis*, Gray, MS. = *C. rugosa*, D'Orb. (pars), is probably a coarse variety of the same species; and the *C. rugosa*, Desh., non Less. nec Val. = *C. lignaria*, Brod., may be a distorted growth of the same variety. *a*, young state, magnified; *b*, the same, a stage older, wrinkles developed crenating the margin, shape abnormal; *c*, inside of smooth form, adult; *d*, a specimen with the cup diseased, probably owing to the decay of half the outside, where the commencement of the cup may be seen exposed; margin of the undecayed part thick and in layers, as in *C. quiriquina*; *e*, outside view of specimen without spines, wrinkles very faint; *f*, specimen with a very few rudimentary spines in the form of tubercles, and faint, curved, radiating lines indicating the direction in which the spines would normally appear; *g*, another specimen, smooth over most of the surface, but with spines fully developed at the top; *h*, a specimen with wrinkles almost evanescent, yet with a few well-developed spines, in straight radiating lines; *i*, a specimen of normal development, with irregular wrinkles crossed by curved rows of spines; *j*, portion of internal margin of specimen *h*; *k*, margin of specimen with spines partly formed, open; *l*, ditto fully developed, hollow throughout; *m*, profile of specimen beginning with regular margin, smooth, afterwards with irregular margin and a few long spines at one corner; *n*, profile of smooth specimen beginning regularly, then with different amounts of irregularity, ending with a regular margin; *o*, three specimens in profile, laid for the vertex to coincide; the first is flattened throughout, forming a regular, obtuse-angled triangle; the second (shaded) begins very conical, spinous, then with two stages, flattened, smooth; the third begins like the first, then spreads somewhat, but ends much compressed; *p*, an abnormal specimen found by Mr. Cuming in a hole, from deep water, and figured in Trans. Zool. Soc. vol. i. pl. 28. f. 8; the long spines are curved backwards over the flat shell, and the cup is extremely prominent; the dotted line represents the outline of a shell at the opposite extreme, var. *compresso-conicum*, Proc. Zool. Soc. 1856, p. 167.

Fig. 4. *Cæcum undatum*, magnified, exhibiting development and variations in shape, sculpture, form of mouth, prominence of plug, &c., observed among about 340 specimens. Similar changes in the common Panama species form the *Cæcum diminutum*, *C. pygmæum*, *C. monstrosum*, *C. eburneum* and *C. firmatum* of Prof. C. B. Adams: (*a*, young *Cæcum*, with spiral part attached, species not known;) *b*, tube smooth and short; *c*, ditto, long; *d*, with faint indications of rings near the margin; *e*, shell more curved; marginal rings stronger; *f*, shell passing at once from smooth to fully ringed state; *g*, the same, more bent, rings irregular; *h*, ditto, curvature irregular; *i*, with more rings, outline very irregular; *j*, stumpy form, rings close, mouth immature; *k*, adult, front view, with multispiral operculum *in situ*, apical portion smooth; *l*, another specimen, mouth contracted, apical portion ringed; *m*, normal state, profile; *n*, specimen with rings almost evanescent; *o*, deformed specimen, broken, and mended without rings. All the irregularities in these figures are intended.

Fig. 5. *Neritina cassiculum*, Sby.: *a*, elevated state, corresponding with subgenus *Vitta* (Klein) of Messrs. Adams; *b*, normal state, subgenus *Neritina* (Swains.) of Messrs. Adams; *c*, depressed state, answering to restricted genus *Neritella* (Humph.) of Messrs. Adams. The same changes of form are observable in the very closely related *Neritina picta*, Sby.=*Vitta picta* of Messrs. Adams.

P. P. CARPENTER.

Report on the present state of our knowledge with regard to the Mollusca of the West Coast of North America. By PHILIP P. CARPENTER.

1. THE duty of preparing a Report "On the present state of our knowledge of the Mollusca of California," was entrusted to the writer simply in consequence of an opportunity which accident had thrown in his way, of obtaining accurate information on the Mollusca of one spot only on the Pacific shores of N. America. Almost entirely destitute of technical knowledge, and living at a distance from collections and libraries, he would not have ventured to undertake it but for the promised aid of one, whose early death, just as he was entering on that field which seemed of all others most adapted to develop his peculiar powers, still leaves a most deeply-felt void in Malacological and Geological Science. This spot is neither politically nor conchologically in California, strictly so called, but belongs in its fauna to the province which culminates in the Bay of Panama and extends southwards to Peru; while many shells of the real Californian fauna extend northwards towards Behring's Straits, and are found on the Asiatic coasts in the Okhotsk Sea. This Report will therefore take cognizance of all that is known of the Mollusca of the West Coast of North America, from the Boreal shores to Panama.

Before results can be obtained of permanent value, and general deductions drawn from them that shall bear on the great questions of the condition of our globe in this and previous ages, it is necessary that the foundations should be laid by patient and accurate examination of every minute point in our inquiries: else, as the wrong measurement of a degree nearly prevented Newton's elimination of the great law of gravitation, so the deficiency or hasty examination of details respecting particular species and their abodes, may lead the great master-minds of science to erroneous conclusions, which, through their well-earned influence, retard rather than stimulate the progress of future research. It is proposed therefore—(1) to state the physical conditions, and the cautions to be observed in the inquiry; (2) to present the different sources of information in historical order; and (3), after tabulating these geographically and zoologically, to draw such inferences as the present state of our knowledge may warrant*.

* On receiving the request of the Association, I issued a circular seeking information as to—

1. What species are found on the north-east shores of the Pacific, especially at Vancouver's Island.
2. What near the mouth of the Columbia river, and in the Oregon territory.
3. What near San Francisco and Monterey.
4. What near San Diego.
5. What along the *Pacific* shores of the peninsula to Cape St. Lucas.
6. What at La Paz, Guaymas, and other stations in the Gulf of California.
7. What at Acapulco and other stations along the coast towards Panama.
8. What species of land and freshwater shells are found in different parts of Oregon, California, and West Mexico.

And, in order to compare with these, as to—

9. What species are found on the *eastern* (Atlantic) shores of Mexico.
10. What at the Galapagos.
11. What at the Sandwich Islands (distinguishing what are brought there from other places).
12. What in Polynesia.
13. What *fossil* species are found in the Tertiary deposits of the United States, which may throw light on the existing Pacific species.

This circular was sent to every accessible station on the West N. American coast, and to naturalists in this and foreign countries. The replies are on most points extremely meagre: but I have pleasure in recording great obligations to Hugh Cuming, Esq., for the most liberal

2. Perhaps no region in the world is so well adapted for the study of the geographical distribution of Mollusca as the W. coast of N. and S. America. Shut out from the vast Indo-Pacific province which reaches to the Sandwich and Marquesas Islands by an uninterrupted body of water almost equal in extent to the whole Atlantic Ocean, on the other side barred against all admixture with the Caribbean Sea by the mighty bulwark of Central America and Darien, it presents the least indented line of coast that the world can show, from the frozen ocean of the north to a southern promontory 20° south of the lowest extremity of the old world. Even the land fauna is separated from that of the bulk of the continent by the great chain of the Andes and the Rocky Mountains, and by the arid climate which prevails over a large portion of its extent. Here then we enter upon a new type of marine life, almost entirely distinct from those with which we have been familiar in the Atlantic, Indian and Polynesian waters; in which we can pass, on each side of the equator, from tropical to boreal conditions, with the most satisfactory regularity. All that we miss is the presence of more oceanic islands; the solitary group of the Galapagos presenting data of unusual interest, to be noticed afterwards.

3. The tropical region of marine life extends much further north than south of the equator. This is accounted for by the direction of the equatorial current, which, striking upon the swelling coast of Peru, sweeps round the great Bay of Panama and Central America, and following the north-westerly direction of the coast, is naturally driven up the narrow Gulf of California, where, even at Guaymas, in lat. 27°, are found the conditions of equatorial climate (*Gould*). The long promontory of Lower California, from lat. 23°–32°, offers a natural impediment to the further northward passage of mollusks; while the current which flows southwards, parallel to the shores of temperate America, seems to convey many boreal species below the latitude at which we should have expected them. The zoological temperate zone therefore is curtailed in the northern and extended in the southern hemisphere.

4. The following are recorded as the physical conditions of places which have been made the special seats of observation.—PANAMA. At the head of an extensive bay, with a reef consisting of "ledges of trachytic rocks, with flat and concave surfaces, and gently sloping, precipitous, or shelving sides." Each has its appropriate species, as have also the loose pieces of rock, according to their size, distance from each other, and amount of insertion in the sand. On the fine sand beaches, *Oliva*, *Tellina*, *Donax* and *Dosinia* abound. On trees a little above half-tide level are found *Purpura* and *Littorina*; with numerous *Veneridæ*, *Columbellæ*, *Neritina picta* and *Arca grandis* among the sticks and moss-like algæ beneath. On ledges of smooth basaltic rocks abound *Littorina*, *Fissurellæ*, and *Siphonariæ*. In a mangrove thicket at high-water mark occur *Cerithideæ*, *Cyrenæ*, *Arca*, *Potamomyæ*, *Melampi*, and "over head, *Littorina pulchra*, almost as rare as beautiful." The ordinary tides are 16–20 feet, very rarely 28 feet, leaving many square miles of sea-bed exposed at the ebb. The bay contains several

and unrestricted use of his unrivalled collections, and the benefit of his experience and judgment; to Dr. A. A. Gould, of Boston, U. S., for the transmission of the whole of his valuable materials, including lists and collections; to R. M'Andrew, Esq., F.R.S., for the use of his collections and library; to R. D. Darbishire, Esq., B.A., of Manchester, and Sylvanus Hanley, Esq., B.A., for aid in the identification of species; to Dr. J. E. Gray, Dr. Baird, and S. P. Woodward, Esq., of the British Museum, for their assistance throughout; to Prof. Dr. Dunker for special help in the Mytilidæ, W. Clark, Esq., in the Cæcidæ, and L. Reeve, Esq., in the Patellidæ; and generally to friends and naturalists who have freely contributed materials at their disposal.

steep islands, of which the best known is Taboga (C. B. Adams, *Pan. Shells*, pp. 19–21).—**MAZATLAN.** On the north side of the bay is a “long neck of narrow hills, [of primitive rock,] their sides exhibiting projecting crags and deep indentations which the ocean has been lashing for ages. On the south are rocky islands, but towards the south-west the harbour is open to the broad Pacific, whence at times the sea rolls in with great fury” (*Bartlett*). The harbour is in some places choked with shoals of large *Pinnæ*, whose sharp edges cut the boats (*Belcher*). Station has often much more to do with the distribution of species than mere latitude: *e.g.* *Venus gnidia* is found in muddy places from Peru to the Gulf of California, but is not found on the prolific sandy floor of Acapulco harbour, where it is replaced by the sand-loving *V. neglecta*. In some sandy situations, the dredge may be used for hours without the smallest success; while in others, where the floor is varied, a short search will procure more than fifty species (*Hinds*).—**CALIFORNIA.** Along the coast of Upper California are primitive rocks, chiefly granite and syenite. Near Santa Barbara are cliffs of shell limestone, perhaps 200 feet high; but their contents have not been recorded. Brooks with hot springs issue from the primitive rocks, and there are abundant traces of huge geological convulsions (*Nuttall*). The peninsula is of volcanic rock, and exhibits great diversity of climate. When, near Cape St. Lucas, the thermometer stands between 60° and 70°, it may be found, near the northern extremity, at the freezing point. The muddy marshes near San Diego, &c., appear to be very prolific in bivalves; as are the rocks in *Acmææ*, which seem to culminate on this coast, whence they were first described by Eschscholtz. “Observations on some points in the Physical Geography of Oregon and Upper California, by Jas. D. Dana,” will be found in ‘Silliman’s American Journal of Science and Art,’ series 2, no. 21, May 1849, p. 376.

5. The Gulf of California (often, even in books of great pretension, strangely called a bay) was discovered by a vessel detached from the expedition of Cortez in 1533 (*Dana*), (1534, teste *Hibbert*). It was the Sea of Cortez, and the Vermilion Sea of the early Spaniards. It is about 700 miles long and from 40–120 wide. About the year 1697* it was colonized by a party of Spanish Jesuits, who founded Loreto, La Paz, and San Jose on its shores. The earliest shell known from its waters was the pearl oyster (*Margaritiphora fimbriata*, Dkr.), to obtain which, about the seventeenth century, the Spaniards employed from 600 to 800 divers; the value of the pearls obtained annually being estimated at 60,000 dollars. So exhausting was this traffic, that the fishery is now almost entirely abandoned. Occasionally, however, a ship-load of pearl shell is sent to Liverpool, and sold for manufacturing purposes. Among the sweepings from one of these loads was found the finest specimen known of *Placunanomia pernoides*, remarkable for its reappearance on the Gambia coast. There appears to have been a treaty with Spain as far back as 1786, allowing of some trade between this country and the Mexican shores; but there is no trace of much intercourse before the Declaration of Independence in 1821. In 1826 a direct treaty was formed between England and Mexico, and from that time the Californian and W. Mexican coast has ceased to be a *terra incognita* to English naturalists. Still, however, our knowledge of the shores and deep waters of the Gulf (especially of its northern extremity), and of the peninsula of California, is most fragmentary. The present Report contains the first account at all verging towards accuracy and completeness, of the fauna at its mouth. The 117 species collected on the shores of Upper California by our country-

* *Hibbert*: 1642, Blackie, Imp. Gaz.

man Mr. Nuttall, incomplete as it is, remains the best list of that interesting district; and in spite of the old-established English settlement near the Columbia River, it was left to the United States' Exploring Expedition to make us even moderately acquainted with the shells of the Oregon district. Of the abyssopelagic species in Oregon and California, we have only the very limited collections of Belcher and Hinds; and of the minuter forms, which in the British fauna are 31 per cent., in the Panama fauna 13 p. c., and in the Mazatlan fauna no less than 39 p. c. of the whole number of species, we cannot reckon more than half-a-dozen names.

6. It might be thought that, in order to obtain suitable lists of the Mollusca inhabiting particular localities, all that was necessary would be that shells should be brought from that locality, and then described. But such is far from being the case. A few of the principal causes of error, both as regards habitat and description, will be noticed, in order that suitable caution may be observed in judging of the materials to be presented.

7. *Errors respecting habitat.*—A large part of the shells in collections have been brought from the seats of trade. Either persons at home, in their communications with friends at sea-ports, request that shells may be sent back; or sailors bring them as an article of commerce. In both cases, the greatest number of specimens is collected from all sources, and no dependence whatever can be placed on the results. Thus, well-known East Indian, Philippine, and Polynesian shells have been sent from Acapulco and Mazatlan; and coast shells from various latitudes, including the Sandwich Islands, occur in the Oregon collection of Lady K. Douglas. It is well if sailors and captains do not add to the confusion by mixing together shells picked up at different places on the voyage. Nor do the errors end here. When they pass into the hands of dealers, it is rarely that the least attention is paid to their locality. They are mixed in drawers in every possible confusion, and instances have not been rare of traders coining habitats to suit the supposed taste of their customers. Even when they have their eyes open to the importance of accuracy, such are the circumstances of confusion attendant on the management of their business, that correctness is rarely to be expected.

8. But even if collections have been made on a single spot by a traveller of ordinary and even of conchological attainments, errors may arise from shells imported in ballast, &c., and dropped on the shore. Adhering and burrowing littoral shells may thus be found alive in places foreign to their native seas. This may account for a specimen of *Acmaea pelta*, abundant at Oregon, being found with the Mazatlan Limpets; and for *Littorina aspera* being given by Prof. Forbes in his zoological map as the characteristic species of the Oregon instead of the Mexican fauna, specimens having probably reached the northern collectors in the same way. As an aid to detect these errors, it is very desirable that shells should be retained without being subjected to the usual acid treatment, as the accretions, or the minute shells among the dirt, will often decide a point that the shell itself will not determine. Thus, a small specimen of *Fissurella Barbadosensis* was separated from a boxful of *F. virescens* (a variety of which in the young state it closely resembles) by a minute *Spiroglyphus* and coral which seem peculiar to the Atlantic Seas. Thus also specimens of *Ostrea iridescens* with their *Placunanomia* were confirmed in their African habitat, from the minute shells between the laminæ, which agreed with the African and differed from the Panamic types. How many of these ballast species have found their way into the well-searched British shores, is patent to the readers of Forbes and Hanley's Hist. Brit. Moll. It is said that even the great Mediterranean

Triton has been dredged with the animal in, off the coast of Guernsey*. It is therefore very desirable that collectors should have a general acquaintance with the shells of a variety of distinct provinces, in order that they may be prepared to detect errors when they arise. For this purpose also the formation of local collections in public museums is very greatly to be recommended †.

9. It might be thought that all sources of error would be avoided, when competent naturalists themselves collect shells in their original haunts. But when different places are visited, it is not always possible, in the confinement of a ship, or amid the confusions of land travelling, to pack and tabulate accurately the results of each branch of inquiry: or, supposing these errors guarded against, intermixings may still take place in the unpacking and distribution of specimens. Moreover, when shells are left loose in cabinets, and the information is supplied by ticket only, a variety of interchanges may very unexpectedly take place. Such errors are most serious when they take place in the collections of naturalists deservedly noted for their accuracy; because whatever appears in their cabinets is naturally regarded as of unquestionable authority. Thus, a Ceylon shell ran an imminent risk of being described as from Mazatlan; and specimens were found bearing one locality on the ticket affixed to them, and another on a ticket within. Thus, also, Prof. Adams notes‡ having received a *Pleurotoma zonulata* from Mr. Cuming, as from the Philippines. Indeed, after the vast collections made by that gentleman in so fruitful a locality, it was natural that shells should be often assigned to this habitat, unless a contrary were known. The "China Seas" or "Eastern Seas" of Lieut. Belcher are also supposed to have included many chance acquisitions; among others, *Dosinia Dunkeri* from the Panamic, and *Semele rubro-lineata* (= *simplex*) from the Californian fauna.

10. All these errors, from whatever source derived, find their way into the monographs, sometimes with additions by the writers themselves, and so become perpetuated. Some authors, even in our own country as well as in France, are not strict in regard to geographical boundaries. "Central America" and "West Columbia" are used generally for the tropical portions of the W. American coast, and "California" for any stations north of Acapulco, either in the Panamic or the San Franciscan province. Mr. Reeve, indeed (under *Patella venosa*, pl. 10. f. 18), extends W. Columbia southwards to include the Isle of Chiloë, in lat. 43°, just as Valenciennes and Kiener extend Peru northwards to include Acapulco. By mistake, Mr. Sowerby, jun., refers a Panama shell to Jamaica, when he cites Prof. Adams's *Cerithium validum*, and gives as the habitat of *Ranella nana* and *albofasciata*, P. Z. S. 1841, p. 52, "ad *insulam* Panama, *Philippinarum*."

11. Another class of errors arises from confounding places which bear the same name. Thus St. Vincent's may be either the island in the West Indies or on the Guinea coast, according as it is used by Guilding or Tams. San Blas may be either the near neighbour of Mazatlan in the Gulf district, or it may be D'Orbigny's locality in Patagonia. And San Juan may be either the bay on the Gulf side of the Peninsula of California, in lat. 27°, or the Straits of San Juan de Fuca (or Fuaco), near Vancouver's Island. It is believed that in Kellett and Wood's collections, the words *de Fuca* have

* Some may attribute a solitary specimen of *Trochus conulus* found by Mr. Bean at Scarborough to a like importation.

† Prof. E. Forbes had been collecting materials for a series of such collections at the University of Edinburgh. It is hoped that they may yet be made available for the purposes for which they were designed.

‡ Pan. Shells, p. 144; so also *Omphalius Californicus*, ticketed "Moreton Bay," Mus. Cum.

been added to papers from the former place; *e.g.* in *Cypræa arabicula*, (Bristol Mus.) and *Planaxis nigritella*, both of which belong to the Gulf fauna. In Mr. Reeve's account of *Hinnites giganteus*, Gray, the shell is quoted from "California and the Straits of Juan Fernandez," pl. 1. sp. 2.

12. The errors of one collection, or of the author, are not confined to books, but are continually repeated in public and private collections. It is important, therefore, when shells are named from the monographs, that the copied locality should be distinguished, say by marks of quotation. When the locality of the actual specimen is known on authority, this may be underlined; and, where practicable, the authority should always be added.

13. *Errors of nomenclature.*—But supposing that the original materials have been collected with perfect accuracy (and for the reasons above stated, those collections are the most reliable which have been made by competent observers on single spots or unmixed districts), a vast variety of errors will probably arise before their nomenclature is suitably established.

First, the works in which shells are described are inaccessible to ordinary students. This arises in part from their being so expensive, that even public museums are often unable to procure them; and in part from species being described in local journals or loose tracts, which either do not find their way at all into general scientific literature, or do so with such tardiness that their effect is simply to introduce the confusion of synonymy, and, by appealing to an earlier date, to upset the labours of those who would most thankfully have been spared the responsibility of description. This almost limits the satisfactory production of original works to those who have frequent access to the capital.

14. Or, supposing the books obtained, the materials are found in so ill-assorted a state, that the student's time is frittered away in finding out where to look. It is customary with some writers to describe new species from any genera or any localities, without the least regard to order. Thus every student at work on the shells of any district is obliged to wade through the "centuries" of new shells described by Philippi in the 'Zeit. f. Mal.,' for fear of overlooking an already published species. Or even when the genera are monographed, the species are generally arranged either by accident or to suit the supposed elegance of the plate; instead of either grouping them zoologically, so as to exhibit allied species side by side, or else geographically so as to bring the species from each district together. For want of some such help, whole hours, which might have been spent in advancing science, may be wasted in hunting for a single *Conus*, a *Voluta*, a *Helix*, or a *Mitra*. As a help to the determination of species, the more minute division of large genera is by no means to be opposed; the Lamarckian genera being to our present knowledge of species and animals what the Linnæan groups were in the times of Lamarck. It is greatly to be regretted that many of the divisions proposed of late years have been named in utter defiance of the principles of nomenclature which the British Association recommend, and which are generally received by the naturalists of this and other countries.

15. But supposing the materials found, it then appears that most of them are in so unsatisfactory a state that allied species cannot be discriminated. Some writers recommend short descriptions to save time; but much more time is lost in the end by the errors to which they give rise. If any one will study the synonymy of the *Calyptæidæ* in the British Museum Mazatlan Catalogue, they will be able to form some idea, though a very partial one, of the labour that has been thus entailed. The consequence is that the same name is often quoted by different writers for very different shells,

which is a much greater evil than the giving of several names to one species. Until, therefore, existing species are tabulated in such a way as to be recognizable by students, it would appear a less evil in a doubtful case to describe a fresh species, than to run a probable risk of affiliating a different shell to a species already constituted.

16. Those identifications therefore are by far the most satisfactory which are made by a comparison of types. But even here the student must exercise caution. For if any one had searched last year for the types of Broderip's *Calyptraeidae* (so obscure to the many who have not access to the plates in the 'Transactions'), he would have found not only two of those species nameless, and in imminent peril of re-description, and that too as from different localities from those recorded in the 'Proceedings'; but he might have observed the same name of Broderip given to two distinct species, neither of which was the shell figured in the 'Transactions,' which still appears under another name. On searching also for the types of shells described in the 'Proceedings,' within a few weeks after they had been communicated, the names indeed were found, but fastened to very different shells from what the author had intended. All these errors had arisen from the number-tickets with the shells referring to the catalogues having been misplaced.

17. As human life is so short, and those who have the inclination for scientific pursuits have generally so little leisure, it is a serious evil when so large a proportion of that little has to be devoted to the labour of making out the errors of predecessors. We therefore venture to suggest some points which may be worthy of the consideration of the leaders in science. First, whether the Government, which often spends large sums in the production of important and expensive works, might not spend a portion of that sum in presenting copies, or selling them at a reduced rate, to the various free museums and libraries in the country. Secondly, whether the British Association (which has already catalogued the stars), or some other public body, might not undertake the work of cataloguing the existing species in different departments of natural history*. And thirdly, whether a general registry office could be agreed upon by naturalists of all nations, which might have branch stations in the various capitals, and to which Latin copies of all descriptions of new species should be sent, by every naturalist who wished to retain the rights of priority; to be accompanied by information where the type specimen was to be found.

18. But the foundation-point of all our inquiries must be the discrimination of species themselves as they exist in nature. And here those labour under great disadvantage who can only consult the "*espèces de cabinet*," in which, for the sake of saving room, single or very few specimens are exhibited; since, in the case of variable species, it is quite easy to pick out several extreme forms which shall apparently be even more distinct than those which all allow to be separate species. Every description therefore which is founded on single or extremely few specimens must be regarded as only provisional, till their circumstances of variation are known. And he, perhaps, is doing more useful work, who has obtained materials by which a full knowledge of the variable powers of mollusks may be attained, than he who only describes a number of single independent forms. Those

* Or if this should be regarded as too great a work, the preparation of cheap digests of species like Mr. Hanley's admirable 'Recent Bivalve Shells,' and figures intermediate between those of Wood and the Monographs, are greatly to be desired. Now that Mr. Woodward's text-book is making the study of Mollusks so popular, the need for such books of species is becoming extensively felt. The publication also of cheap abstracts of expensive books, such as are given in the 'Zeit. f. Mal.,' would be of great service to students.

who would study species in a comprehensive manner might advantageously consult the canons given in Dr. W. B. Carpenter's *Researches on Orbitolites*, 'Trans. Roy. Soc.' 1855, pp. 226-230. It must not be expected, however, that creatures (comparatively speaking) so highly organized as mollusks, should assume such abnormal forms as the lower animals and plants. Often indeed one species will greatly vary, while another, closely allied, is constant in its characters; or differences will be found between the shells of a single species, which in another tribe would justly entitle them to generic separation. No general rules therefore can be given to guide the student. But it is required of him that he should faithfully use all the materials at his command; not being satisfied with an examination of particular forms, but carefully working through those shells especially which many would cast aside simply because they were puzzling, or were not fine specimens. Those whose work lies mainly among picked collectors' shells are recommended to study the series of fossils arranged by Prof. E. Forbes in the Museum of Practical Geology, and the large suites illustrating particular species in the British Museum Mazatlan Collection.

19. It is, however, by no means recommended that we should abstain from describing new forms, because it may afterwards be discovered that they are conspecific with others previously found. The great point is, that we should be guided in those matters that are least known by the experience gained by studying carefully ascertained species in their varied developments; and that we should not desire the maintenance of species simply because they have once been published, when further light assigns to them a subordinate place. Those writers are therefore not to be blamed who have multiplied species simply from a want of sufficient materials. Thus when C. B. Adams described as five distinct species the *Cæcum pygmæum*, *diminutum*, *monstruosum*, *eburneum*, and *firmatum*, which seem only stages in the development of the same shell, he did carefully, according to the then state of knowledge, what a naturalist of less accuracy would have passed over as one shell, simply from not having found out the differences. But when the further discovery of many hundreds of individuals proves that they are identical, a higher point of knowledge is reached, according to which all examinations in the same group may be henceforth interpreted till some yet higher generalization is attained.

20. But when species are constituted or disregarded, simply in obedience to a theory, injury is done to the progress of science. Thus a recent author on the British Fauna appears unwilling to believe in the existence of species other than what occur on the South Devon coast; and accordingly unites together many which have been constituted by the most accurate naturalists, but which, from their northern station, he had not an opportunity of studying. And on the other hand, the principal American conchologists, having assumed a theory that no species can be found in two distinct provinces unless we can see a way by which they may have moved from one to the other, forthwith proceed to describe as new everything which makes its appearance on an unexpected side of the coast. Undoubtedly it is by far the most easy way of studying a fauna merely to consult those works which apply to that fauna, and to describe as new whatever is not found therein; but we must beware lest we be forcing Nature into our own form. Now, just as we give a species already constituted the benefit of a doubt, till we be fairly able to prove its identity with another, so we may suppose shells different from opposite coasts, till we can prove them the same. But, in the language of the late Dr. Binney*, "until the question of the identity of

* *Terrestrial and Air-breathing Molluscs of the United States*, edited by Dr. Gould, Boston, 1851, vol. i. chap. 3.

these closely allied species has been decided by their anatomy, we believe it to be perfectly safe to adopt this axiom,—that *species, whencesoever derived, possessing the same characters, are identical*. We view this to be a more rational course than to consider them to be the *analogues* of each other; a convenient but very indefinite mode of expression, which may be used to cover every degree of similitude, from a general analogy to a close affinity hardly admitting of distinction*.”

21. As far as facts already ascertained justify us in drawing any conclusions, it would appear that while the shells in each of the great provinces throughout the world are in the main remarkably distinct from each other, there are in each fauna (1) many shells which are parallel with those from other seas; (2) some which are nearly ubiquitous, and often extend far back in geological age; and (3) others which, though by no means widely diffused, reappear very unexpectedly in far-distant seas. Thus Philippi and Hanley quote shells common to the Mediterranean and Australia; Mr. Cuming finds the British *Lucina borealis* and *Nassa incrassata* at the Philippines; and even Mr. Hinds can trace no difference between a *Neera* of the China Seas and the European *N. costellata*. As to the line of demarcation between species and varieties, that must remain in many cases a matter of individual opinion. Those who, with Prof. Adams, can speak of the different species of Man (Conch. Contr. p. 87; a view more congenial to the “peculiar institution” of the stripe-flagged United States than to the readers of Pritchard’s Physical History), may be expected to constitute species of shells on characters which to others will appear of secondary importance; while those who have been in the habit of examining large multitudes of specimens will take a larger view of the probable extent of specific variation. These differences will be taken into account in comparing the works of one naturalist with another.

22. Having thus shown the grounds of caution in using the materials by which a knowledge of local faunæ is to be derived, we proceed to examine, one by one, the sources of information which have been discovered with regard to the Mollusca of the two great divisions of the West N. American fauna. The localities to which they principally refer may be arranged as follows:—

- I. BOREAL FAUNA. A. *Circumpolar*. Icy Cape, lat.† 70°5'. Behring’s Straits, on the Arctic circle. “Behring Sea.”
- B. *Asiatic*. Sea of Okhotsk, with the Schantar Is., 55°. Kurule Is., from Japan to Kamtschatka. Petropaulovski, 52°5'. Cape Lopatka, 51°: from which the Aleutian Is. extend to
- C. *American*. Prom. Aliaska. Those most explored are, Is. Kodiak, 57°; Oonashka, 54°; Atcha, 53°. Norfolk Sound in King George’s Archipelago. Sitcha, 58°, in the parallel of the Hebrides.
- II. TEMPERATE FAUNA. A. *Oregon*. (Parallel of France.) Vancouver’s Is. 49°–51°, with Nootka Is. and Sound; separated on the south from the mainland (of which the extreme point is Cape Classet) by the Straits of San Juan de Fuca, at the S. end of which is Ft. Nisqually, 47°. At the mouth of Columbia River are Townsend and Discovery Harbour, 46°. Up the river is Ft. Walla Walla. R. Willamette flows upwards into the R. Columbia, near Ft. Vancouver, 46°.
- B. *Upper California*. (Parallel of the Mediterranean.) “Colonie Russe,” or Bodegas, 38°. San Francisco and R. Sacramento, 37°5'. Monterey, 36°5'. Sta Barbara, 34°. Is. Catalina, 34°‡.

* Vide Prof. Agassiz on the “Geographical Distribution of Animals,” in the ‘Christian Examiner,’ Boston, March and July 1850.

† The degrees are only given approximately.

‡ Another Is. Catalina is in the Gulf.

- c. Peninsula of Old or *Lower California*, 23–32°, Pacific Shores. (Parallel of the Canaries.) San Pedro, near Is. Catalina. San Diego, 33°*. Bay of Magdalena, with Is. Margarita, 24·5°. Cape St. Lucas, 23°.
- III. TROPICAL FAUNA. A. *Gulf District*. (Tropic —? 32°). a. Californian Coast. Cape Palma†, 23·5°. La Paz, 24°. Is. and Cape San Jose, 25°‡. Loretto and Bay of San Juan, 26·5°.§ Gulf San Miguel, 29°||. b. Mexican Coast. Guaymas, 28°. Lobos Is. 27°¶. Mazatlan, 25° (with the Is. Crestin, Ciervo, Permano, Venado, &c.). Is. Tres Marias, 22°. Isabella Is., between these and San Blas, 21·5°.
- B. *Mexican and Central American District*. (Parallel of Senegambia.) Revillagigedos Is. 18°, not yet searched, perhaps connected with the Gulf fauna. Acaapulco, 17°. Gulf Tehuantepec, 16°. Sonsonati and Guacomayo (or Guayamoco), 14°. Gulf of Fonseca or Conchagua, 14°. Realejo or Real Llejos, 13°. Gulf of Papagayo, 11°. Gulf of Nicoya, 10°, with Punta Arenas within the Gulf, and Cape Blanco at the entrance. Gulf of Dulce**, or Bay of Costa Rica, with Is. of Caña and Pueblo Nuovo, 9°. Bay of Montijo and Bay of Honda, 8°. Is. of Quibo, 7°.
- c. *Panama District*. (Parallel of Liberia.) The town is in lat. 8° 49', and in the Bay are the Is. of Taboga, Rey, Perico, San Jose, and Saboga††.
- d. *Ecuador District*. Atacamas, with Cape San Francisco‡‡, 1° N. Bay of Carracas, 5° S. Is. Plata, 1°. Gulf of Guayaquil, with Punta St. Elena, Punta Arenas and Is. Puna, 2°. Payta, 5°.
- e. *Galapagos or Tortoise Is.*, on the equator in long. 90°, consisting of six large and seven small islands; those most quoted are, Charles Is., James Is., Albe-marle Is., Chatham Is., and Hood's Is.§§

23. Scarcely any mention is made of W. American shells by Linnæus, Chemnitz, and the older conchologists generally. A very few handsome species from the Panama province, such as *Oliva porphyria*, &c., had found their way into European collections and books, perhaps through the pearl oyster trade; or even, it may be, introduced indirectly through East Indian commerce. But our first direct acquaintance with the shells of the Panama

* The shells of this place rank somewhat better with Lower than with Upper California, with which it is locally and politically connected. It was the first settlement on the coast, having been founded by the Jesuits in 1769. There is another San Diego in the Gulf of Tehuantepec.

† Not to be confounded with Cape Palmar, on the equator, in long. 80°; nor with Cape Palmas on the Guinea coast, where are islands (St. Thomas and St. Vincent) liable to be associated with the Antilles.

‡ There is also a San Jose between the two capes at the end of the promontory, and another in the harbour of San Francisco. An island of the same name is in the Bay of Panama.

§ Besides this station and the Straits of De Fuca, there is a San Juan on the opposite shore near Guaymas; another near San Blas; a Point on the coast near Lake Nicaragua; and a little island between Is. Catalina and San Diego.

|| There is another San Miguel near the Bay of Fonseca, in long. 88·5°; also a port in the Bay of Panama, lat. 8° 10'; and an island outside Sta Barbara.

¶ Not to be confounded with Lobos Is., Peru.

** Another Gulf of Dulce opens out of the Bay of Honduras.

†† This is quoted by Prof. Adams as a corruption of Taboga. It is, however, marked in the charts as a very small island, N.W. of San Jose and one-third of the distance between that and Taboga. A river Chiriqui is also quoted as in the Bay of Panama. Perhaps it is near the town of the same name in Veragua. There is another Chiriqui between Greytown and Chagres.

‡‡ There is a Bay of San Francisco in Lower California on the Pacific side, in lat. 30°, and another near San Miguel within the Gulf. Also a Bar of the same name in the Gulf of Tehuantepec.

§§ Another Hood's Is. is in lat. 21° S., long. 135° W. Which of these is the "Lord Hood's Is." often quoted in Mr. Cuming's Coll., is not known. It is possible that some species belonging to the Galapagos fauna have been passed over, from their being assigned to the Polynesian station.

province is due to the French botanist, Joseph Dombey. He arrived in Peru in 1778, and brought home several shells, of which eight species are described by Lamarck*. (*C. B. Adams.*)

24. The earliest authentic collections, however, made on the Pacific shores of N. America were obtained by the celebrated Baron Humboldt and his companion M. Bonpland. In 1803 they reached Peru, whence they sailed to Acapulco. It is to be regretted that they did not themselves describe the shells they brought. They were seen, indeed, by Lamarck, who described eleven species from them; but the detailed account was entrusted to M. Valenciennes, and was not published till 1833, the descriptions having been written in Nov. 1831†. In vol. ii. of "Recueil d'Observations de Zoologie et d'Anatomie Comparée, faites dans l'Océan Atlantique, dans l'Intérieur du Nouveau Continent, et dans la Mer du Sud pendant les années 1799–1803,

* An important aid in the understanding of the Lamarckian species was given by M. Deslessert, who published a magnificent volume of plates entitled "Recueil de Coquilles décrites par Lamarck dans son Hist. Nat. des An. s. Vert. et non encore figurées. Paris, 1841." A copy may be seen in the library of the Linn. Soc., and a list of species is given by Menke in his 'Zeit. f. Mal.' June 1844, pp. 83–95.

† The following Table may aid the student in deciding questions of priority: the lists being given in the approximate order of collection; the order of publication being very different.

Precedence of Publication.	Date of Expedition.	Date of Publication.	Vessels.	Collectors.	Northern District.	California.	Mexico and C. America.	Panama and S. America.
1	1778	Lam. A. s. V.	...	Dombey				
2	1803	{ Do.	{ ...	Humboldt and Bonpland..				
9		{ Voy. 1833						
3		{ 1826–1830						
5	1822–1825	1826–1830	Coquille	Lesson				
5	1823–1826	1829–1833	...	Eschscholtz				
4	1825–28	{ 1829 Z. J.	{ Blossom	Beechey and Belcher				
11		{ 1839 Voy.						
12	1826–1836	1839	{ Adventure and Beagle	{ Capts. King and Darwin				Gal.
18	1826–1833	1847	...	D'Orbigny				
8	1827–1830	1832–56	...	Cuming				
6	.....	1832 Blainv.	{ ...	Botta				
7		1833 Duclos						
10	1834–1835	1836, 37	...	Nuttall				
21	1836–1837	1847–51	Bonite	Eydoux and Souleyet				
13	1836–39	{ Desh. 1839–40	{ Venus	{ DuPetitThouars, Chiron, }				
16		{ Voy. 1846		{ La Perouse				
14	1836–1842	{ Z. P. 1843	{ Sulphur	Belcher and Hinds				
		{ Voy. 1844						
17	1839–1842	1846–	{ U. S. Expl. Exp.	{ Wilkes, Couthouy				
20	1843–1844	1847–51	...	Middendorff				
15	.....	1846	.....	(Philippi)				
25	1846–1848	1851–56	Mexic. war	Jewett, Green, and Rich...				
19	.....	1847	...	Melchers				
24	1848–1849	1850–51	...	Melchers				
23	.....	1850	Pandora	Kellett and Wood				
30	1848–1850	1856	...	Reigen				
22	.....	1850	...	Wilson				
26	1850	1852	...	C. B. Adams				
29	1854	1856	...	(Sailor)				
27	.....	1855	...	Blake and Webb				
28	1856	1856	...	Bridges				

par Al. de Humboldt et A. Bonpland; Paris, 1833," will be found the "Mollusques, décrites par A. Valenciennes," pp. 217-339. Several of the shells are from the East Indies; and of those assigned to Acapulco, many appear to have crossed the Pacific by the agency of man. The list of Acapulco shells, however, as it appears, is as follows:—

Page.	Plate.	Fig.	
222	48	2a, b.	<i>Tellina petalum</i> , Val. Acapulco. Almost exactly like <i>T. solidula</i> .
221	50	3a, b, c, 4.	<i>Donax radiata</i> , Val. Pacific shores of equatorial America. This appears to be either <i>D. punctatostratus</i> , Hanl. var., or <i>D. Conradi</i> , Desh., probably the latter; but the description is not sufficiently accurate to claim priority.
219	48	1a, b, c.	<i>Venus succincta</i> , Val. Acapulco. Probably = <i>Anomalocardia subimbricata</i> , Sow. or <i>V. neglecta</i> , Gray.
236	50	2.	<i>Anodonta glauca</i> , Val. Acapulco. Appears exactly to accord with <i>Anodon ciconia</i> , Gould, except that it is said to be white within. Perhaps described from a single specimen.
245	55	1a, b.	<i>Bulimus undatus</i> , Lam. Mexico. = <i>Ortholicus zebra</i> , Müll.
247	56	1a, b.	<i>Bulimus Mexicanus</i> , Lam. Mexico. The shell described in B. M. Maz. Cat. p. 177. no. 234, may be the young of this species.
267	...	...	<i>Haliotis Californiana</i> , Val. California.
273	...	...	<i>Turbo pellis-serpentis</i> , [quasi] Val. Acapulco. = <i>Tegula p.</i> , Mawe.
263	...	...	<i>Nerita textilis</i> , Linn., Lam. Acapulco.
264	...	...	<i>Nerita papilionacea</i> , Val. Acapulco. Differs from the last in having fewer ribs, and granulations on the lip. Lat. '83.
275	...	...	<i>Turritella gonostoma</i> , Val. Acapulco, [Jun.].
276	...	...	<i>Turritella leucostoma</i> , Val. Acapulco.
277	...	...	<i>Cerithium musica</i> , Val. Acapulco. Described from one sp. long. 1'25: said to resemble <i>C. literatum</i> , Brug. (not Born and Gualt.).
278	...	...	<i>Cerithium granosum</i> , Val. Acapulco. Probably a <i>Cerithidea</i> .
278	...	...	<i>Cerithium stercus-muscarum</i> , Val.* Acapulco.
279	...	...	<i>Cerithium fragaria</i> , Val.* "One sp. fished at Acapulco," plaited like <i>Fasciolaria</i> , resembles <i>C. lima</i> , long. 1' + . Comp. <i>Vertagus gemmatus</i> , Hds. jun.
282	...	...	<i>Cerithium varicosum</i> , [quasi] Val. Probably <i>Cerithidea varicosa</i> , Sow.†
252	56	2a, b.	<i>Paludina carinata</i> , Val. "Mexico:" on which side of the mountains is not stated.
271	...	...	<i>Tectarius coronatus</i> , Val. Acapulco.
334	...	...	<i>Cypræa radions</i> , Lam. Acapulco.
334	...	...	<i>Cypræa arabicula</i> , Lam. Acapulco.
334	...	...	<i>Cypræa Lamarckii</i> , Ducl. Acapulco.
307	...	...	<i>Strombus troglodytes</i> , Lam. Acapulco.
308	57	4a, b.	<i>Strombus cancellatus</i> , Lam. Acapulco.
336	...	...	<i>Conus regius</i> , Brug. & Lam. Acapulco. = <i>C. princeps</i> , Linn.
336	...	...	<i>Conus lineolatus</i> , Val. Acapulco. Like the last.
337	...	...	<i>Conus cinctus</i> , Val. Acapulco. Like <i>C. hyæna</i> .
338	...	...	<i>Conus scalaris</i> , Val. Acapulco. The recent analogue of <i>C. desperditus</i> , Lam.
269	...	...	<i>Solarium granulatum</i> , Lam. Acapulco.
269	...	...	<i>Solarium granosum</i> , Val. Acapulco. "The living analogue of the Italian fossil, <i>S. millegranum</i> ."
270	...	...	<i>Solarium bicanaliculatum</i> . Val. Acapulco.
265	57	3a, b.	<i>Natica Bonplandi</i> , Val. Acapulco. = <i>N. patula</i> , Sow. teste Val.; but probably a distinct species, as it is described "callo subdiviso."

* These species are not noticed by Sow. jun. in his recent Monograph. His "*C. granosum*, Kien." is an Australian species, like *C. corallium*; and his "*C. musicum*, nob." is like *C. vulgatum*, but from the Cape de Verd Islands.

† *C. Humboldtii*, Val. = *C. Pacificum*, Sow. teste Jay.

Page.	Plate.	Fig.	
332	<i>Mitra babea</i> , Val. Acapulco. Resembles <i>M. Vulpecula</i> , &c.
286	<i>Fasciolaria canaliculata</i> , Val. Acapulco. Resembles <i>F. tulipa</i> . Long. 2.33.
286	<i>Fasciolaria rugosa</i> , Val. Acapulco. Long. .42. Probably a young <i>Latyrus</i> .
283	<i>Turbinella ardeola</i> , Val. Acapulco. = <i>T. cæstus</i> , Brod. According to Val. the <i>Leucozonia</i> (<i>Monoceros</i>) <i>cingulata</i> was not brought by Bonpland, as Lam. supposed.
334	<i>Oliva testacea</i> , Lam. Acapulco.
334	<i>Oliva volutella</i> , Lam. Acapulco.
334	<i>Oliva zonalis</i> , Lam. Acapulco.
310	<i>Cassis centiquadrata</i> , Val. Acapulco.
311	<i>Cassis doliata</i> , Val. Acapulco.
312	<i>Cassis testiculus</i> , Linn. Acapulco. (W. Indian.)
313	<i>Cassis coarctata</i> , Wood. "West shores of South America, near Acapulco." In p. 338, the author again refers to Acapulco as in South America. [= <i>Levenia c.</i> , Gray.]
323	<i>Harpa scriba</i> , Val. Acapulco.
325	<i>Malea* latilabris</i> , Val. Acapulco. "= <i>Buccinum ringens</i> , Wood."
327	<i>Malea crassilabris</i> , Val. Acapulco. Described from a single sp., and probably a var. of <i>Malea ringens</i> .
328	<i>Buccinum leiocheilos</i> , Val. Acapulco.
329	<i>Columbella</i> , allied to <i>rustica</i> . Acapulco. Doubtless <i>C. fuscata</i> , Sow.
330	<i>Columbella strombiformis</i> , Lam. Acapulco.
331	<i>Columbella gibbosa</i> , Val. Acapulco. "= <i>C. strombiformis</i> , pars, Sow. Gen. f. 1." Appears to be a variety of the last, and not <i>C. major</i> , as it is described with a yellow border to the aperture, and white spots on the back.
331	<i>Columbella costata</i> , Val. Acapulco. Possibly = <i>Anachis coronata</i> , Sow.
314	<i>Purpura patula</i> , Linn. Three individuals were labelled "South Sea" by Bonpland: Val. confesses that no difference can be traced between these and the W. Indian shells.
315	<i>Purpura undata</i> , Lam. Acapulco. = <i>P. biserialis</i> , Blainv. Val. says that he has compared this shell with the Lamarekian type, but confesses that his description (according to him, by a <i>lapsus calami</i>) does not agree. Kiener figures the <i>P. undata</i> , Lam. for a different W. Indian shell, and is probably right.
316	<i>Purpura speciosa</i> , Val. Acapulco. = <i>P. centiquadra</i> , Val. MS. = <i>P. triserialis</i> , Blainv.
316	<i>Purpura canaliculata</i> , Val. Acapulco. Long. .66.
317	<i>Purpura semi-imbricata</i> , Lam. Acapulco.
318	<i>Purpura</i> (<i>Monoceros</i>) <i>crassilabrum</i> , Lam. Acapulco.
287	<i>Fusus turris</i> , Val. Acapulco. Like <i>F. colus</i> . Long. 6'.
288	<i>Fusus cancellatus</i> , Val. Acapulco. Like <i>Trophon fenestratus</i> . Long. 1.42.
290	<i>Fusus Magellanicus</i> , Gmel., Lam. (<i>Trophon</i>). "= <i>T. fimbriatum</i> , Mart. S. America and Acapulco." [?]
291	<i>Pyrula patula</i> , Brod. Acapulco.
292	<i>Pyrula vespertilio</i> , Gmel. (<i>Murex</i>). = <i>P. carnaria</i> , Enc. Acapulco.
294	<i>Pyrula</i> (<i>Ficula</i>) <i>reticulata</i> , Lam. "S. America."
295	<i>Pyrula</i> (<i>Ficula</i>) <i>ficoides</i> , Lam. "With the preceding at Acapulco."
296	<i>Pyrula spirata</i> , Lam. Acapulco (Bonpland).
304	<i>Tritonium hamastoma</i> , Val. Acapulco. Very like <i>pileare</i> , Linn.
305	<i>Tritonium macrodon</i> , Val. Acapulco. Like the last.
306	<i>Tritonium decussatum</i> , Val. Acapulco. Like <i>Distortio anus</i> .
297	<i>Ranella crumenoides</i> , Blainv. "= <i>R. crumena</i> , Brod. Zool. Journ. Suppl. pl. 11. fig. 2."

* Although this genus is properly defined in Latin, Messrs. H. and A. Adams (Gen. vol. i. p. 196) lay it aside in order to introduce an unknown name, *Cadium*, previously given by Link.

Page.	Plate.	Fig.	
298	<i>Ranella granifera</i> , Lam. Acapulco.
299	<i>Murex radix</i> , Gmel. Acapulco.
300	<i>Murex tricolor</i> , Val. = <i>M. regius</i> , Swains. (<i>rectè</i>).
301	<i>Murex bicolor</i> , Val. = <i>M. regius</i> , Schub. & Wagn. (<i>malè</i>). "With the last at Acapulco."
302	<i>Murex erinaceoides</i> , Val. Acapulco.

This list, being the largest known from Acapulco, would have been extremely valuable, could it have been depended on for accuracy. But (1) the presence of several well-known E. Indian and other foreign shells (supposed by Prof. Adams to have been obtained from the inhabitants, the relics of former trade with the Philippines) endangers the authenticity of others, unless there be further confirmation. And (2) the description of the species, although set forth with not a little display, is performed in so loose a manner, that it is impossible to speak of them with confidence without an inspection of the types. It will be seen that the author adopts a course, too common among French naturalists, of changing the specific when he alters the generic name, appending his own authority for the species; and that when two authors have used the same name for a shell, instead of preserving the right and re-naming the wrong, he has given his own names to both species.

25. In the "Voyage autour du Monde sur la Coquille, pendant les années 1822-5, par L. I. Duperrey, Paris, 1826" (plates only), the following are the only two species connected with this province:—

"Moll. pl. 11. f. 1, 1', *Natica glauca*, Humb. Peru." = *N. patula*, Sow.

"Moll. pl. 15. f. 2, 2A, *Calyptrea Adolphei*, Less.," has the animal represented in the reversed position: = *Crepidula dilatata*, Lam.

From the text (not seen) are quoted, among others—

P. 421. No. 198 (1830), *Patella scurra*, Less.

P. 419, *Patella clypeaster*, Less.

26. The earliest known collector on the North-west shores of America was the justly celebrated Dr. Johann Friedr. Eschscholtz, Professor and Director of the Zoological Museums in the University of Dorpat. He accompanied an expedition in the Russian ship *Predprietië*, commanded by Capt. Kotzebue, during the years 1823-6, which, after sailing round Cape Horn, and visiting the Bay of Conception in Chili, proceeded by the Sandwich Islands to Kamtschatka, reaching Petropaulovski June 22, 1824. Thence they proceeded along the north-west coast of America to Sitcha, and in October and November to San Francisco and the Rio Sacramento. In the following year they again sailed by the Sandwich Islands to Norfolk Sound, Sitcha; thence to Manilla; and returned *viâ* St. Helena. During this time Eschscholtz collected 2400 species belonging to all divisions of the animal kingdom; including 10 sp. of Cephalopoda, 172 Gasteropoda, 45 Lamellibranchiata, and 28 Tunicata*. The description of the new species was commenced by Eschscholtz in the "Zoologischer Atlas, enthaltend Abbildungen und Beschreibungen neuer Thierarten, Berlin, May 1829;" but he died of nervous fever, May 7, 1831, at the early age of 37 years. The work was brought to a conclusion in the year 1833 (from the author's MSS.) by Dr. Martin Heinrich Rathke, who appears to have succeeded him in the chair at Dorpat†. The following is the brief list of the species bearing on

* The plants collected during the expedition appear to have been described by Eschscholtz immediately after his return, in the *Mémoires de l'Acad. de St. Pétersbourg*, vol. x. p. 281-292 (1826), "Descriptiones plantarum novæ Californiæ, adjectis florum exoticorum analysisibus."

† An analysis of the Mollusca in this work is given by Menke in the *Zeit. f. Mal.* May 1844, pp. 70-76.

our present inquiry. The descriptions are in Latin, the localities accurately recorded, and the work illustrated with plates which are tolerably characteristic.

Part. Page. Plate. Fig.

- | | | | |
|---|----|-----|---|
| 2 | 10 | 9 | 1. <i>Murex monodon</i> , Esch. Sitcha. = <i>M. foliatus</i> , Gmel. teste Rve.
= <i>M. tripterus</i> , Lam. teste Sow. = <i>M. alata</i> , Chemn. teste Sow. |
| 2 | 10 | 9 | 2. <i>Murex ferrugineus</i> , Esch. Sitcha. = <i>M. lactuca</i> , var. (Midd.). |
| 2 | 11 | 9 | 3. <i>Murex lactuca</i> , Esch. Sitcha. |
| 2 | 11 | 9 | 4. <i>Murex multicostatus</i> , Esch. Sitcha. = <i>Trophon clathratus</i> , Linn.
teste Midd. |
| 3 | 16 | 15 | 1. <i>Pleuropus pellucidus</i> , Esch. South Sea (Pacific), near Equator. |
| 3 | 17 | 15 | 5. <i>Creseis cornucopie</i> , Esch. South Sea, near the "niedern Inseln." |
| 3 | 18 | 15 | 6. <i>Creseis caligula</i> , Esch. South Sea, near Equator. |
| 4 | 14 | 19 | 1. <i>Eolidia pinnata</i> , Esch. Sitcha. |
| 4 | 15 | 19 | 2. <i>Cavolina crassicornis</i> , Esch. Sitcha. |
| 4 | 15 | 19 | 3. <i>Cavolina subrosacea</i> , Esch. Sitcha, on Fuci. |
| 4 | 16 | 19 | 4. <i>Glaucus Pacificus</i> , Esch. Intertropical Pacific. |
| 4 | 16 | 19 | 5. <i>Glaucus draco</i> , Esch. Equatorial Pacific. |
| 4 | 17 | 19 | 6. <i>Phylliroë Lichtensteinii</i> , Esch. Pacific, west of Sandwich Islands. |
| 5 | 16 | | <i>Acmaea</i> . Animal and shell described. |
| 5 | 18 | 23 | 4. <i>Acmaea mitra</i> , Esch. = <i>Patella scurra</i> , Less. = <i>Scurria mitra</i> ,
Gray, Gen. = ? <i>Lottia pallida</i> , Gray, Zool. Beech. Voy. Sitcha.
This shell is very abundant on the coasts of Chili (<i>Cuming</i>),
and is also common near Monterey (<i>Nuttall</i>), but is not found
in tropical America. |
| 5 | 18 | ... | <i>Acmaea mammillata</i> , Esch. Sitcha. = <i>Scurria mitra</i> , var. teste
Phil., Midd. |
| 5 | 19 | ... | <i>Acmaea marmorea</i> , Esch. Sitcha. = <i>Scurria mitra</i> , var. teste Midd. |
| 5 | 19 | 24 | 3. <i>Acmaea cassis</i> , Esch. Sitcha. The northern analogue of <i>P.</i>
<i>deaurata</i> , Gmel., from the Magellan Straits. Probably = <i>P.</i>
<i>exarata</i> , (Nutt. MS.) Rve. Conch. Ic. pl. 19. sp. 47: var. pl. 24.
f. 62 a, b. Oregon, <i>Lieut. Baskerville</i> . ? = <i>P. Mazatlanica</i> ,
Gray. |
| 5 | 19 | ... | <i>Acmaea pelta</i> , Esch. Sitcha. = <i>P. leucophæa</i> , (Nutt. MS.) Rve.
Conch. Ic. 34. 101. + <i>P. monticola</i> , Nutt. MS. (= <i>P. monticolor</i> ,
Jay, Cat. 2844) + <i>P. strigillata</i> , (Nutt. MS.) Jay, Cat. 2881. |
| 5 | 19 | 23 | 1-3. <i>Acmaea scutum</i> , Esch. Sitcha. (Chili, Bolivia, Peru, <i>D'Orb.</i>),
= <i>A. patina</i> , var. teste Phil., Midd. |
| 5 | 19 | 24 | 7, 8. <i>Acmaea patina</i> , Esch. Sitcha. = <i>P. mammillata</i> (Nutt. MS. non
Esch.), Rve. Conch. Ic. 42. 140. + <i>P. tessellata</i> , (Nutt. MS.)
Jay's Cat. 2885. + <i>P. fenestrata</i> , (Nutt. MS.) Rve. C. I. 38. 121.
+ <i>P. verriculata</i> , Rve. C. I. 31. 87. California. + <i>P. cinis</i> , Rve.
C. I. 24. 60. Monterey, <i>Hartweg</i> . ? + <i>P. Nuttalliana</i> , Rve. C. I.
30. 81. Oregon. + <i>P. Cumingii</i> , Rve. C. I. 16. 37. Valparaiso,
<i>Cuming</i> , teste Rve.: "never took it," <i>Cuming</i> , teste seipso.
Monterey, <i>Hartweg</i> , teste Mus. <i>Cuming</i> . ? + <i>P. diaphana</i> (Nutt.
MS.) Jay, Cat. 28. 3, non Rve. + <i>Lottia pintadina</i> , pars, Gould,
Exp. Sp. p. 9: v. B.M. Maz. Cat. p. 207. no. 265.* |

* The above extensive citation of synonyms is the result of (1) the study of Eschscholtz's diagnoses:—(2) The judgment of them by Philippi, after seeing the types, as recorded in *Zeit. f. Mal.* 1846, p. 106-8:—(3) The fully recorded judgment of Middendorff in the *Mal. Ross. and Sib. Reise, in locis*:—(4) The careful and repeated examination of Mr. Nuttall's shells, (a) in his own collection, aided by his recollection, and with the full concurrence of his judgment; (b) in Dr. Jay's catalogue; (c) in Mr. Cuming's collection, as received from Nuttall, through Jay, and figured by Reeve:—(5) The comparison with these of Dr. Gould's specimens, collected on the same coast by the officers of the United States' Exploring Expedition and of the Mexican war:—(6) The examination of the types of Mr. Reeve's species in the Cumingian collection:—(7) The interpretation of all the above by the experience derived from the repeated and most careful examination of many thousand (at least 15,000) Limpets in the Mazatlan collection. It is offered as an approximation to the truth. It is a subject of great

Part. Page. Plate. Fig.

- 5 20 *Acmaea radiata*, Esch. Sitcha. = *A. persona*, jun. teste Midd., non Phil.
- 5 20 24 1, 2 *Acmaea persona*, Esch. Sitcha. = *P. Oregona*, (Nutt. MS.) Rve. Conch. Ic. pl. 36. sp. 112. + *P. umbonata*, (Nutt. MS.) Rve. C. I. 35. 107. + *P. pileata*, (Nutt. MS.) Jay, Cat. 2861. ? = *Lottia punctata*, Gray : teste Midd. (non Quoy & Gaim.)
- 5 20 24 4, 6 *Acmaea ancylus*, Esch. Sitcha. = *A. persona*, teste Midd., non Phil.*
- 5 20 23 7, 8 *Acmaea digitalis*, Esch.†
- 5 21 23 5 *Fissurella aspera*, Esch. Sitcha. ? = *F. densicathrata*, Reeve.

Besides these, Philippi in Zeit. f. Mal. 1847, p. 113, describes *Modiola Californiensis*, Esch. from a specimen brought by Eschscholtz, and by an accident inscribed by him *Pholas Californiensis* in the Dorpat Museum. It is intermediate between *Lithophagus dactylus*, &c., and *L. cinnamomeus*.

27. The "Catalogue of the Shells contained in the Collection of the late Earl of Tankerville, with Appendix containing descriptions of many new species, by G. B. Sowerby, Lond. 1825," is a very interesting document, both as showing how few shells from the West N. American coast were then known, and also how early some of the most remarkable, as *Crepidula adunca*, *Lucapina crenulata*, and others, had found their way to this country. The following shells belong to our present subject of inquiry; those having page-references being properly described in the appendix.

Page. No.	Page. No.
iv. 226. <i>Donax transversus</i> .	rare species, as we have never met with another specimen."
ii. 116. <i>Macra elegans</i> (figured).	Mart. iii. pl. 66. f. 733.
„ 208. <i>Lucina punctata</i> .	
„ 284. <i>Cytherea aurantia</i> (South Seas).	xvi. 1786. <i>Strombus granulatus</i> .
vi. 796. <i>Fissurella crenulata</i> .	xx. 1792. <i>Strombus gracilior</i> .
„ 808. <i>Siphonaria gigas</i> (Panama).	xxi. 1826. <i>Cassid coarctata</i> . "We believe it to be a New Zealand shell."
„ 814. <i>Calyptraea extintorium</i> [non Lam.].	xxi. 1824. <i>Cassid ringens</i> . "Forms a good genus, nearer in natural affinity to <i>Dolium</i> , to which <i>D. pomum</i> also should be referred."
„ 815. <i>Calyptraea spinosa</i> .	„ 1843. <i>Purpura columellaris</i> .
vii. 828. <i>Crepidula adunca</i> .	„ 1844. <i>Purpura bicostalis</i> .
„ 1213. <i>Haliotis Crucherodii</i> .	„ 1888. <i>Monoceros cymatum</i> .
„ 1214. <i>Haliotis Californiensis</i> , and others.	„ 2002. <i>Columbella strombiformis</i> .
xiii. 1418. <i>Planaxis planicostatus</i> (Galapagos).	„ 2253. <i>Cypraea pustulata</i> .
„ 1401. <i>Turbo bicarinatus</i> (figured).	„ 2263. <i>Cypraea radians</i> .
xvi. 1553. <i>Fasciolaria princeps</i> .	„ 2290. <i>Oliva porphyria</i> .
„ 1672. <i>Murex brassica</i> .	„ 2295. <i>Oliva angulata</i> .
xix. 1703. <i>Murex monodon</i> , Mart. iii. pl. 105. f. 980, 987.	xxiii. 1984. <i>Terebra strigata</i> . "It is extremely rare, only a few specimens having been brought from the Panama."
„ 1673. <i>Murex regius</i> .	
„ 1675. <i>Murex radix</i> .	
xvi. 1614. <i>Pyrula ventricosa</i> . "We believe it to be an extremely	

regret that Mr. Reeve, in describing the Limpets of the West N. American coast, did not avail himself of the previous labours of Eschscholtz, Middendorff and Menke in the same direction. If an author professes that he cannot understand the labours of his predecessors, he is not bound to add to them; but if he builds on their foundation, without making that foundation his own, he cannot expect the stability of his edifice.

* Philippi regards *A. radiata* + *ancylus* as forming quite a distinct species from *A. persona*. He thinks that the locality-tickets have become misplaced, and that it is really from Chili. He affiliates, from type, *A. punctata*, D'Orb., which does not appear in the B.M. Cat., and was not seen in his collection. There is no reason why the species should not reappear on the Chili coast, as *A. patina* and *S. mitra* seem to do. Middendorff confirms the northern localities.

† Judging from the figures and descriptions of this shell, I should have regarded it as the

28. The next expedition furnishing results belonging to our present subject of inquiry was the "Voyage to the Pacific and Behring's Straits, performed in H.M.S. Blossom, under the command of Capt. F. W. Beechey, R.N., F.R.S. &c., in the years 1825-28." Capt. Beechey was principally assisted in the collection of Mollusca by Lieut. Belcher. Unfortunately it was not at that time thought necessary to mark the locality of specimens; and for a large proportion we have to depend on general notes or the memory of the collectors. Of several very interesting species, however, the locality was carefully preserved. A series of specimens having been presented to the Zoological Society, the new species were described at the request of the Society by Messrs. Broderip and Sowerby in the Zoological Journal, vol. iv. 1829, pp. 359-379, with Latin diagnoses and a plate. As this list is valuable, both from its not being mixed with other collections and from the known accuracy of the writers, it is here presented entire.

Page.					
359.		<i>Nucula arctica</i> ; a few sp. in Vatcha Bay, Kamtschatka.	Pl. 9. f. 1.		
360.		<i>Macra pallida</i> , San Blas.			
		" <i>Macra subglobosa</i> .			
361.		<i>Corbula rostrata</i> .			
		" <i>Corbula gibbosa</i> ; 1 sp. Icy Cape.		Page.	Pl. Fig.
		" <i>Solen acutidens</i> , Chinese Sea (Loo Choo).....	Z.B.V.	153	43 2
		" <i>Solen tenuis</i> , Northern Ocean.			
362.		<i>Solen altus</i> , Northern Ocean.			
		" <i>Tellina Burneti</i> , Mazatlan. Pl. 9. f. 2.			
363.		<i>Tellina edentula</i> , Behring's Straits.....	"	154	{ 41 5
		" <i>Tellina alternidentata</i> , Icy Cape	"	153	{ 44 7
		" <i>Tellina inconspicua</i> , Icy Cape. 2 sp.....	"	153	{ 44 5
		= <i>T. Grænlantica</i> , Beck, MS.			{ 41 6
		" <i>Tellinides purpureus</i> , Pacific. (Real Llejos, Cuming.)....	"	153	42 2
364.		<i>Cytherea rosea</i> , San Blas	"	151	43 7
		" <i>Venus gnidia</i> , San Blas.....	"	151	41 3
		" <i>Cyrena Mexicana</i> , Mazatlan. "In Mr. Sowerby's Coll."			
		The type appears to have been lost.			
365.		<i>Astarte crassidens</i> , Icy Cape. 1 sp.			
		" <i>Astarte lactea</i> , Icy Cape	"	152	44 12
		" <i>Arca grandis</i> .			
		" <i>Arca gradata</i> , Mazatlan	"	152	43 1
366.		<i>Cardium Belcheri</i> ; 3 sp. taken north of Isabella Is. in the entrance of the Gulf of California, 15 fm. Pl. 9. f. 3.			
		" <i>Cardium radula</i> (resembling <i>C. muricatum</i>).			
		" <i>Cardium punctulatum</i> . 1 sp.			
367.		<i>Cardium Dionæum</i> , Is. in S. Pacific.....	"	152	42 6
		" <i>Cardium graniferum</i> , Mazatlan: 6 inches in mud.			
		" <i>Cardium biangulatum</i>	"	152	42 5
368.		<i>Cardium boreale</i> , Icy Cape.			
		" <i>Chiton albalineatus</i> , Mazatlan	"	149	40 4
		" <i>Chiton Loochooanus</i> , Loo Cho.			
		" <i>Chiton vestitus</i> , Arctic Ocean	"	150	41 14
369.		<i>Vermetus pellucidus</i> . Probably the young of <i>V. eburneus</i> , Rve.			
		" <i>Patella Mexicana</i> , Mazatlan. Long. 9 in.			
		" <i>Dentalium semipolitum</i> . (Like <i>D. nebulosum</i> .)			
		" <i>Bulla calyculata</i> , Pitcairn's Island.			
370.		<i>Crepidula incurvata</i> , Kamtschatka.			
		" <i>Fissurella hians</i> , Valparaiso.			
		" <i>Emarginula crenulata</i> .			

young of *A. persona*, which is sometimes deeply ribbed, sometimes nearly smooth. Both Philippi and Middendorff, however, regard it as a well-distinguished species.

Page.		Page.	Pl.	Fig.
370.	<i>Littorina squalida</i> , Northern Ocean. Resembles <i>L. littoreus</i> .			
371.	<i>Margarita umbilicalis</i> , Northern Ocean.			
„	<i>Margarita striata</i> , Northern Ocean	Z.B.V. 143	34	11
„	<i>Sigaretus coriaceus</i> , Northern Ocean : Cape Lisbon Bay.			
„	<i>Neritina alata</i> , Taheite.			
372.	<i>Natica pallida</i> , Icy Cape.	„	136	34 15
„	<i>Natica otis</i> , Mazatlan. Comp. <i>N. Galapagosa</i>	„	136	{ 34 13 37 3
„	<i>Natica clausa</i> , North Sea, <i>Sabine</i>	„	136	{ 34 3 37 6
„	<i>Mitra crassidens</i> .			
373.	<i>Harpa gracilis</i> .			
374.	<i>Trichotropis bicarinata</i> , 10–15 fms. Between Cape Lisbon Bay and Icy Cape. Pl. 9. f. 4–8.			
375.	<i>Trichotropis borealis</i> , Melville Is. : 1 sp. <i>Lieut. Belcher</i> , Icy Cape.			
„	<i>Buccinum boreale</i> , Kamtschatka.			
376.	<i>Columbella costellata</i> . “Panama and Coast of Africa,” <i>Gray</i> .	„	129	36 9
„	<i>Nassa luteostoma</i> = <i>N. Xanthostoma</i> , <i>Gray</i>	„	127	36 3
„	<i>Ricinula elegans</i> . (Very like <i>R. arachnoidea</i> .)			
„	<i>Ranella nana</i> .			
377.	<i>Murex ducalis</i> , near Mazatlan. = <i>M. brassica</i> , <i>Lam.</i>	„	108	33 1
„	<i>Pyrula patula</i> , Pacific (= <i>T. melongena</i> , var. n. 1611, <i>Tank.</i> Cat. 62.)	„	115	{ 34 10 35 1,3
378.	<i>Fusus lapillus</i> , Pacific. = <i>Buccinum subrostratum</i> , <i>Gray</i> , <i>Wood Suppl.</i> = <i>Pyrula s.</i> , <i>Gray</i> , <i>Z. B. V.</i>	„	115	36 15
„	<i>Fusus pallidus</i> , Mazatlan. “A <i>Fusus</i> from the Calcaire grossière near Paris presents no observable marks of difference.”	„	117	36 14
„	<i>Pleurotoma tuberculifera</i> , North of Isabella Is., entrance of Gulf of California.			
379.	<i>Conus arcuatus</i> , near Mazatlan. ? = <i>C. regularis</i> , var.	„	119	36 22
„	<i>Conus interruptus</i> , near Mazatlan. Resembles <i>C. purpurascens</i>	„	119	33 2
„	<i>Oliva gracilis</i>	„	130	36 21

In a continuation of this paper (*Zool. Journ.* vol. v. pp. 46–51) are found the following species :—

Page.				
46.	<i>Chelyosoma MacLeayanum</i> . Arctic Seas, on stones. New genus (<i>Tunicata</i>), described.			
48.	<i>Cytherea planulata</i> . Near Mazatlan	Z.B.V. 151	43	6
49.	<i>Venus decorata</i> . Hab. ? Mus. Sow. Brought home in the ‘Blossom.’ Pl. Suppl. 40. f. 3.			

The duty of describing the Mollusca of the ‘Blossom’ was undertaken by Mr. (now Dr.) J. E. Gray, who considered it a suitable occasion not only for introducing descriptions of Mollusca collected in the Pacific Ocean about the same time by Capt. Lord Byron, Mr. Fryer, and the Rev. — Hennah, and presented by them to the British Museum; but also for giving a complete account (so far as materials then served) of the animals of the various genera. This course delayed the completion of the work for nine years; and it was at last only by entrusting the revisal and completion of the MS. to Mr. Sowerby, that Capt. Beechey was enabled to publish the work in July, 1839. For the reasons above stated, the “Zoology of Captain Beechey’s Voyage : Molluscous Animals and their Shells, by J. E. Gray, F.R.S. &c., London 1839,” is more valuable as a contribution to general conchological and malacological knowledge than to the furtherance of geographical studies.

The following is a list of the additional species described, so far as they may be supposed to belong to the West N. American province; the references to the species already described by *Brod.* and *Sow.* being appended to the former list. The diagnoses are in English; the plates beautiful and accurate, sometimes, however, too highly coloured.

Page. Plate. Fig.

- 108 33 4, 6. *Murex vitulinus* [? non Lam.] = *Vitularia salebrosa*, King, Zool. Journ. v. 347.
- 109 *Murex acanthopterus*, "Lam. 165 = *M. monodon*, Esch. = *M. phyllopterus*, Sow. Gen. non Lam. = *M. foliatus*, Wood = *M. purpura alata*, Chemn. Pacific, N. Zealand, &c. [!] + *M. trigonularis*, Cab. Lam. (filed down)."
- 109 *Murex monodon*, Sow. Tank. Cat. no. 1703.
- 109 *Murex regius*, Panama.
- 109 *Murex radix*, Panama.
- 109 *Murex radix*, "wide-variced var. further north." = *M. nigrilus*, Phil. + *M. ambiguus*, Rve.
- 108 } 33 1. *Murex brassica*, Lam. "Further north still."
- 109 }
- 110 *Tritonium Chemnitzii*. " = *Murex argus*, var. Chemn."
- 112 *Polia hamastoma*. = *Pisania sanguinolenta*, Ducl.
- 113 *Turbinella rigida*, Gray in Wood Suppl.
- 114 *Turbinella castanea*, Pacific.
- 114 *Turbinella cerata*, Gray in Wood Suppl.
- 117 *Fusus angulatus*, North Sea.
- 117 *Fusus Sabini*, North Sea.
- 117 *Fusus ventricosus*.
- 117 *Fusus glacialis*, Arctic Ocean.
- 117 *Fusus fornicatus*, Gmel., Icy Cape.
- 118 36 13. *Fusus lamellosus*, Icy Cape.
- 118 *Fusus multicostatus*, Esch. Northern Ocean.
- 119 *Conus Ximenes*, Panama.
- 122 34 5. *Harpa rosea crenata*. = *H. crenata*, Swains., Pacific.
- 124 *Monoceros grande*, Pacific.
- 124 *Monoceros punctatum*, Pacific.
- 124 *Monoceros lugubre*, Sow. Gen. f. 3. = *M. cymatum*, (Soland.) Sow. Tank. Cat. = *Buccinum denticulatum*, + *B. amatum*, Wood Suppl. Pacific. (California, on rocks, teste Reeve.)
- 125 *Monoceros maculatum* = *Buccinum brevidentatum*, Gray in Wood Suppl. = *Purpura cornigera*, Blainv. Pacific. [Mr. Gray assigns no reason for changing his own previous name.]
- 127 36 6. *Buccinum angulosum*, Icy Cape.
- 128 *Buccinum polaris*, Icy Cape.
- 128 36 19. *Buccinum tenue*, Icy Cape.
- 129 *Columbella cribraria*, Lam. = *C. mitriformis*, Brod. and King.
- 131 36 25. *Oliva zonalis*, Lam.
- 131 36 23, 27. *Oliva undatella*, Lam.
- 131 *Oliva lineolata*, Gray. = *Voluta Dama*, Wood Suppl. 4; 37. ? Peru.
- 131 *Oliva volutella*, Lam.
- 132 *Aragonia hiatula*, [Gray, not] Lam. = *Oliva testacea*, Lam. S. Amer.
- 136 37 2. *Natica borealis*, North Sea, Sabine.
- 136 37 4. *Natica suturalis*, North Sea, Sabine and Beechey.
- 139 *Littorina fasciata*, ? Pacific.
- 143* 34 14. *Trochiscus Norrisii*, Sow., Mag. Nat. Hist. 2nd series.
- 147 39 1. ? *Lottia pallida*, Pacific. = *Acmæa mitra*, Esch.†

* From this page to the end, the work is edited by Mr. G. B. Sowerby, principally from Mr. Gray's MS.

† As Mr. Gray quoted the Zool. Atl. in the earlier part of this work, it is remarkable that he did not adopt Eschscholtz's genus *Acmæa*, instead of *Lottia*, which, with others in the same work, appear only one step removed from the nonsense names of Adanson.

Page. Plate. Fig.

- 148 39 12. *Patella Mazatlandica*, Mazatlan. This species did not occur among the myriads of limpets lately sent from the same place. It closely resembles *Acmaea cassis*, Esch., and may really have come from the North.
- 150 41 15. *Chiton tunicatus*, Wood. Sitcha (teste Reeve).
- 150 41 16. *Chiton articulatus*, Sow. Proc. Zool. Soc. 1832. San Blas, under stones.
- 150 41 17. *Chiton setosus*, Sow. P. Z. S. 1832. Guacomayo.
- 150 43 9. *Chama echinata*, Brod. Trans. Zool. Soc. vol. i. p. 306. pl. 39. f. 5-7. The specimen figured in these books, and in Chén. Conch. Ill., as a very old individual of *Ch. echinata*, is proved by the series in the B.M. Mazatlan Coll. to be a comparatively young shell of *Chama frondosa*, var. *Mexicana*. V. Cat. p. 87. no. 121.
- 151 41 8. *Venus neglecta*. Central America, in sandy mud.
- 151 43 5. *Venus biradiata*. Found abundantly at San Blas and Mazatlan. = *C. squalida*, Sow. = *C. Chionæa*, Mke.
- 152 44 10. *Astarte Banksii*, Northern Seas.
- 152 44 9. *Astarte ?striata*, Northern Seas.
- 152 42 4. *Cardita crassa*, Acapulco.
- 152 42 7. *Cardium Panamense*, Sow. Proc. Zool. Soc. 1833, p. 85. Sandy mud at Panama. The specimen here figured can hardly be distinguished from the young of *C. procerum*.
- 152 42 3. *Pectunculus inæqualis*, Sow. Proc. Zool. Soc. 1832, p. 196. Sandy mud at Panama and Real Llejos. This is not the shell usually known by this name, and is accordingly quoted by Krauss for a S. African species.
- 154 44 4. *Tellina proxima*, Brown, MS. Arctic Ocean.
- 154 44 8. *Maetra similis*, Gray, MS. Northern Seas.

The following species are added on the authority of Mr. Reeve, in his Conch. Icon. :—

Plate. Spec.

- 9 62. *Fissurella Lincolni*, Gray, Conch. Ill. p. 7. no. 62. f. 40. Monterey, *Belcher*.
- 6 27. *Turritella sanguinea*, Rve. California, *Mus. Belcher*.
- 11 42. *Murex imperialis*, Swains. Zool. Ill. series 2. vol. ii. pl. 67. Mud banks, Isabella Is., Cal., *Belcher*.

29. In the "Supplement to the Index Testaceologicus, by W. Wood, F.R.S. &c., London, May 1828," are figured several shells (principally without habitats) which belong to the West N. American fauna, and which were probably collected by Capt. Lord Byron, Rev. — Hennah, &c. Those which are recognized are as follow :—

Plate. Fig.

- 2 1. *Donax scalpellum*, B.M.
- 2 6. *Venus subrugosa*, Mawe. Panama.
- 2 11. *Arca pectiniformis*, B.M. Closely resembling *Pectunculus inæqualis*.
- 3 6. *Conus gradatus*, Mawe. California.
- 3 7. *Cypræa arabicula*, (Mawe) Lam. South Seas.
- 3 3. *Bulla decussata*, Mawe. Panama. (*Ficula*.)
- 3 26. *Voluta harpa*, Mawe.
- 4 36. *Voluta cærulea*, Mawe. = *Oliva volutella*, Lam.
- 4 37. *Voluta Dama*, Mawe. S. Sea. = *O. lineolata*, Gray.
- 4 1. *Buccinum ringens*, B.M. = *Malea crassilabris*, Val.
- 4 5. *Buccinum coarctatum*, Mawe. (*Cassis*.)
- 4 6. *Buccinum Rudolphi*, Mawe. = *Purpura columellaris*, Lam.
- 4 10. *Buccinum brevidentatum*, Mawe. (*Monoceros*.)
- 4 12. *Buccinum armatum*, Mawe. ? = *Monoceros lugubre*.
- 4 13. *Buccinum tectum*, Mawe. (*Cuma*.)
- 4 15. *Buccinum Planaxis*, Mawe. = *Planaxis laticostata*, Sow.
- 4 18. *Buccinum strombiforme*, B.M. = *Columbella strombiformis*, Lam.

Plate. Fig.

- 4 23. *Buccinum roseum*, B.M. = *Harpa rosea*.
 4 24. *Buccinum minus*, B.M. = *Harpa minor*.
 4 1. *Strombus gracilior*, B.M.
 4 13. *Strombus galea*, B.M.
 4 14. *Strombus galea*, jun.
 4 21. *Strombus granulatus*, B.M.
 5 3. *Murex rigidus*, B.M. (*Lathirus*).
 5 13. *Murex regius*, Swains. South Seas.
 5 15. *Murex ceratus*, Mawe. (*Lathirus*).
 5 19. *Murex aculeatus*, Mawe. = *M. dubius*.
 5 1. *Trochus undosus*, Mawe. California. (*Pomaulax*).
 5 2. *Trochus unguis*, Mawe. California. (*Uvanilla*).
 5 3. *Trochus olivaceus*, Mawe. S. Sea. (*Uvanilla*).
 5 4. *Trochus pellis-serpentis*, Mawe. Panama. (*Tegula*).
 5 17. *Trochus Byronianus*, B.M. Sandwich Is. [?] (*Omphalius*).
 5 23. *Trochus filus*, B.M.
 6 44. *Turbo fluctuosus*, Mawe. (*Callopoma*).
 6 45. *Turbo saxosus*, Mawe. (*Callopoma*).
 8 2. *Nerita patula*, B.M. (*Natica*) S. America.
 8 4. *Nerita ornata*, B.M. S. America. = *N. scabricosta*, Lam.
 8 2. *Patella poculum*, B.M. = *Trochita radians*, Lam.
 8 3. *Patella Peziza*, B.M. = *Crucibulum spinosum*, Sow.
 8 4. *Patella scutellata*, B.M. = *Crucibulum imbricatum*, Sow.

30. In the Voyage of the Astrolabe to the Australian and East Indian Seas during the years 1826–1829, of which the “Zoology” was published by MM. Quoy and Gaimard, Paris, 1830–35, there does not appear to have been a single species collected identical with any from N. America. A list of the Mollusca is given by Menke in the *Zeit. f. Mal.* for March 1844, pp. 38–48. The same result appears in East Indian and Polynesian voyages generally, which therefore have not been collated.

31. In the “Description of the Cirrhipeda, Conchifera, and Mollusca in a Collection formed by the Officers of H.M.S. Adventure and Beagle, employed between the years 1826–1830 in surveying the southern coasts of S. America, including the Straits of Magalhaens and the coast of Tierra del Fuego, by Capt. Philip P. King, R.N., F.R.S., assisted by W. J. Broderip, Esq., F.R.S.,” given in the Zool. Journ. vol. v. 1832, pp. 332–349, occur very unexpectedly descriptions of the following species:—

No. 44. *Ampullaria Cumingii*. Is. Sabago, Bay of Panama, in a small hill stream.

Received from Mr. Cuming. Mus. Brit., King, Brod.

„ 57. *Murex salebrosus*. Hab.? Mus. King, Sow.

„ 60. *Triton scaber*. Fished up with the anchor in Valparaiso Bay. Mus. King.

32. The most comprehensive and accurate materials for the knowledge of the tropical Pacific fauna, are to be found in the collections made by Hugh Cuming, Esq. In the year 1827 that gentleman set out on his first great conchological voyage, and remained till 1830, exploring the West coast of America, at various stations from Chili to the Gulf of Fonseca or Conchagua, in lat. about 13° N. He also visited various of the Pacific Islands, and especially the Galapagos group. Mr. Cuming is the first collector on record who took notes, as accurate as was thought necessary, of the results of his dredgings. It is cause for the greatest regret that a systematic account of this expedition has never been published. The new shells brought home have indeed been to a great extent described in the *Proc. Zool. Soc.* and figured in the Monographs of Sowerby and Reeve. Of these the particulars of station and habitat have been recorded. But not only has the student to

wade through a number of works, at the risk of overlooking what belongs to his purpose: he has also to find that many of the genera have never yet been examined; and that, while new species are tabulated, the localities of those before known are not given. If materials are yet accessible by which lists could be published of all the shells found by Mr. Cuming at different places, separately, with particulars as to their frequency, as well as station, such a work would be among the most valuable contributions to geographic zoology yet given to the world. All notes of habitat recorded in the *Proc. Zool. Soc.* 1832–1836, may be considered as very authentic*. After the interruption caused by the second and great expedition of Mr. Cuming to the Philippines, there is of course a possibility of error from the accidental interchange of tickets belonging to different species. It is right to state that the services rendered to malacological science by the researches of Mr. Cuming are only equalled by the urbanity and readiness with which he allows the use of them to scientific inquirers†, and to which the author is under very peculiar obligations.

The following are the species observed in the *Proc. Zool. Soc.* Wherever the localities or stations given in the illustrated Monographs differ from these, the statements in the *Proceedings* must be regarded as of most authority.

1832. Page.	PROC. ZOO. SOC.—Cuming.	Station.	Depth in fms.	Locality.
25	Chiton‡ Goodallii, Brod. { jun. sen.	u. s. & rock-ledges exposed situations	1. w. ...	James Island, Gallapagos. Ditto ditto.
25	— Stokesii, Brod.	on stones	1. w.	Panama, St. Elena.
26	— limaciformis, Sow. ....	.....	...	Guacom., Inner Lobos Is.
27	— Elenensis, Sow.	under stones	1. w.	Pan., St. Elen.
27	— setosus, Sow.	exposed situations	...	Guacomayo.
28	— scabriculus, Sow.	under stones	...	Guac., Puerto Portrero.
28	— retusus, Sow. ....	.....	...	Ditto ditto.
29	Placunanomia Cumingii, Brod. {	in mud, on dead bivalves & corals	} 11 10–16	Gulf of Dulce. G. Nocoioy, P. Port., Xipix.
29	Dentalium tesseragonum, Sow...	sandy mud		
30	Carocolla quadridentata, Brod...	woods	...	G. Dulce.

* It is necessary, however, to use even these with caution; as, in the papers purporting to describe shells collected by Mr. Cuming, species are introduced from places which he never visited. All shells quoted from the Gulf of California, Acapulco, and stations north of the Bay of Fonseca, are of this class. These were *obtained*, but not *collected*, by Mr. Cuming, and are therefore liable to the errors of his informants. A remarkable instance of the way in which mistakes arise will be found in P. Z. S. 1833, p. 36, where Mr. Sowerby, in describing “shells collected by Mr. Cuming,” states that “detached valves were picked up on the sands at Real Llejos and Mazatlan.” In Mr. Reeve’s Monograph, which is supposed to be of perfect accuracy in all matters relating to the Cumingian Museum, we read that “a few odd valves of this species were found by Mr. Cuming on the sands at Real Llejos and Mazatlan.”

† Mr. Broderip, in commencing the description of the shells collected by Mr. Cuming in his great expedition to the Philippines, 1836–40, deservedly writes (*Proc. Zool. Soc.* 1840, p. 84),—“Mr. C., by his accurate notes, and the open publication of the places where every one of the multitudinous species and varieties collected by him was found, has mainly assisted in making a complete revolution in this department of the science, and has done more towards giving us data for the geographical distribution of the testaceous Mollusca than any person who has yet lived.”

‡ Perhaps the first notice of Mr. Cuming’s labours occurs in a “Description of several new species of Chitones found on the coast of Chili in 1825, with a few remarks on the method of taking and preserving them, by John Frembley, R.N.” (*Zool. Journ.* vol. iii. 1828, pp. 193–205). Among others, the author describes *Chiton Cumingsii*, “after his friend Mr. Cumings of Valparaiso, whose zeal in the pursuit of this interesting science will, he is persuaded, soon make a large addition to our present stock.” In connexion with this paper should be read another, by the Rev. Lansdown Guilding, B.A., in the *Zool. Journ.* vol. v. pp. 25–35, “Observations on the Chitonidæ: St. Vincent, May, 1829.” In this paper, the genus *Acanthopleura* is properly characterized.

1832. Page.	PROC. ZOOL. SOC.—Cuming.	Station.	Depth in fms.	Locality.
31	<i>Bulinus translucens</i> , <i>Brod.</i>	on trees	...	Is. King & Saboga, B. Pan.
32	<i>Fasciolaria granosa</i> , <i>Brod.</i>	mud banks	...	Pan.
33	<i>Voluta Cumingii</i> , <i>Brod.</i>.....1 sp.	.....	9	Gulf of Fonseca.
50	<i>Cancellaria solida</i> , <i>Sow.</i>	sand	8-10	Real Llejós, St. Elena.
51	— <i>bullata</i> , <i>Sow.</i>	mud	12	Payta, G. Nocoíya.
51	— <i>mitriformis</i> , <i>Sow.</i>.....1 sp.	sandy mud	...	Pan.
51	— <i>goniostoma</i> , <i>Sow.</i>.....1 sp.	sand	8	Conchagua, San Salvador.
52	— <i>clavata</i> , <i>Sow.</i>	sandy mud	7	Pan., Pay.
52	— <i>obesa</i> , <i>Sow.</i> .....	.....	15	G. Dulce, P. Port.
53	— <i>cassidiformis</i> , <i>Sow.</i>	sandy mud	16	Pan.
53	— <i>acuminata</i> , <i>Sow.</i>	sandy mud	12	Guacom.
54	— <i>buccinoides</i> , <i>Sow.</i>	sandy mud	7-15	Rl. Lj., Iqui., Callao, P. Port.
54	— <i>indentata</i> , <i>Sow.</i>.....	.....	...	Pan.
54	— <i>hæmastoma</i> , <i>Sow.</i>	sand	10-16	Gal.
54	— <i>chrysostoma</i> , <i>Sow.</i>	sand	8-10	Pan., St. Elen.
55	— <i>gemmulata</i> , <i>Sow.</i>	sandy mud	...	G. Nocoíya.
55	— <i>decussata</i> , <i>Sow.</i>	sandy mud	10-13	Pan., P. Port.
55	— <i>bulbulus</i> , <i>Sow.</i> ...2 sp. jun.	sand	8-10	Real Llejós.
55	<i>Scalaria diadema</i> , <i>Sow.</i>.....	.....	...	James Is., Gal.
55	<i>Cardita Cuvieri</i> , <i>Brod.</i>.....1 sp.	sandy mud	11	G. Fonseca.
56	— <i>varia</i> , <i>Brod.</i>	fine sand	6	Gal.
58	<i>Chiton dispar</i> , <i>Sow.</i>	under stones	shore	Is. Saboga.
58	— <i>Columbiensis</i> , <i>Sow.</i>	under stones	l. w.	Pan.
59	— <i>hirundiformis</i> , <i>Sow.</i>	under stones	l. w. {	Chatham Is., Gal., Ancon,
60	<i>Stilifer Astericola</i> , <i>Brod.</i>	in <i>Asterias solaris</i>	...	Lobos Is., Payta, Peru.
105	<i>Bulinus vexillum</i> , <i>Brod.</i> [= al-ternans, Beck, teste Jay]	{ trunks of large trees }	...	Ld. Hood's Is., Gal.
105	— <i>Panamensis</i> , <i>Brod.</i>	ditto	...	Is. King and Saboga.
113	<i>Columbella pulcherrima</i> , <i>Sow.</i> 1 sp.	sandy mud	10	Ditto ditto
113	— <i>harpiformis</i> , <i>Sow.</i>	on dead shells	10	G. Dulce.
113	— <i>bicanalifera</i> , <i>Sow.</i>	sandy mud	10	Pan.
114	— <i>coronata</i> , <i>Sow.</i>	under stones	...	Gal.
114	— <i>lyrata</i> , <i>Sow.</i>	under stones	...	Pan.
114	— <i>elegans</i> , <i>Sow.</i>	sandy mud	...	Pan., Chiriqui.
115	— <i>turrita</i> , <i>Sow.</i>	coarse grav. & s.m.	10	Guacom.
115	— <i>fulva</i> , <i>Sow.</i>	under stones	...	B. Mont., St. El.
115	— <i>rugosa</i> , <i>Sow.</i>	under stones	...	Pan.
115	— <i>fluctuata</i> , <i>Sow.</i>	under stones	...	Pan., Xipix.
116	— <i>lanceolata</i> , <i>Sow.</i>	fine coral sand	...	G. Nocoíyo.
116	— <i>maculosa</i> , <i>Sow.</i>	sandy mud	6-8	Gal.
116	— <i>hæmastoma</i> , <i>Sow.</i>	under stones	...	Guacom.
116	— <i>varia</i> , <i>Sow.</i>	under stones	...	Gal., Pan.
116	— <i>scalarina</i> , <i>Sow.</i>	under stones	...	Pan.
116?	— <i>pyrostoma</i> , <i>Sow.</i>	under stones	...	Pan., Chiriqui.
117?	— <i>maura</i> , <i>Sow.</i>	under stones	...	Pan., Gal.
117?	— <i>livida</i> , <i>Sow.</i>	under stones	...	Pan., Gál.
117	— <i>fuscata</i> , <i>Sow.</i>	under stones	...	Pan.
118	— <i>costellata</i> , <i>Sow.</i>.....1 sp.	.....	...	Pan., St. Elen., M. Xti.
118	— <i>guttata</i> , <i>Sow.</i> "Long well known, but not aware that hitherto described." = <i>Buccinum cribrarium</i> , <i>Lam.</i>	under stones	16	Pan.
118	— <i>varians</i> , <i>Sow.</i> "First brought by Capt. Cook, in Endeavour." }	.....	...	Pan.
118	— <i>angularis</i> , <i>Sow.</i>.....	.....	...	"Galapagos (Hood's Is.)."
118	— <i>castanea</i> , <i>Sow.</i>.....	.....	...	Pan.
119	— <i>major</i> , <i>Sow.</i>	under stones	...	Real Llej.
119	— <i>procera</i> , <i>Sow.</i>.....1 sp.	.....	...	Is. Muerte.
119	— <i>pygmæa</i> , <i>Sow.</i>	on dead sh., sdy m.	10	Pan.
119	— <i>unicolor</i> , <i>Sow.</i> .....	.....	...	St. El.
125	<i>Bulinus nux</i> , <i>Brod.</i>	on bushes	...	"Gal. (Hood's Is.)."
				Charles Is., Gal.

1832. Page.	PROC. ZOOL. SOC.—Cuming.	Station.	Depth in fms.	Locality.
173	<i>Cancellaria uniplicata</i> , Sow. 2 sp.	sand	10	Pan.
173	<i>Ovulum avena</i> , Sow.	.....	...	Conchagua.
173	— <i>inflexum</i> , Sow. 1 sp.	.....	...	G. Dulce.
174	— <i>æquale</i> , Sow.	.....	...	Pan.
174	<i>Murex recurvirostris</i> , Brod.	sandy mud	9	G. Nicoiyo.
174	— <i>erosus</i> , Brod.	under stones	...	Pan.
175	— <i>pumilus</i> , Brod.	under stones	...	Gal.
175	— <i>nucleus</i> , Brod.	fine coral sand	8	Gal.
175	— <i>vibex</i> , Brod.	sandy mud	6-12	St. Elen., Pan.
176	— <i>oxyacantha</i> , Brod.	sandy mud	8	Real Lleijos.
176	— <i>nitidus</i> , Brod. 1 sp.	cleft of rock	...	Real Lleijos.
176	— <i>horridus</i> , Brod. = M. Boi- vini, Kien.	sandy mud	8-12	St. Elen., Pan.
177	— <i>lappa</i> , Brod.	rocky bed	12	St. Elen.
179	<i>Ranella muriciformis</i> , Brod.	loose gravel	7	B. Mont.
179	— <i>cæolata</i> , Brod.	under stones	...	Pan.
185	<i>Cypræa Pacifica</i> , Gray.	under stones	...	Gal.
185	— <i>rubescens</i> , Gray.	under stones	...	Gal.
185	— <i>Maugeri</i> , Gray.	under stones	...	Gal.
194	<i>Ranella pyramidalis</i> , Brod. } = <i>Murex anceps</i> , Pfr. ... }	on reefs	...	Pan., Ulitea.
195	<i>Cardita laticostata</i> , Sow.	sand	6-12	Rl. Llej., Pan., St. El., Guac.
195	— <i>radiata</i> , Sow.	muddy sand	6-12	Pan., Salango.
195	— <i>affinis</i> , Sow.	sandy mud	6-12	B. Mont., G. Nocoia.
196	<i>Pectunculus inæqualis</i> , Sow.	sandy mud	10	Pan., Real Llej.
196	— <i>assimilis</i> , Sow.	sandy mud & grav.	8-12	B. Guayaq., P. Port.
196	<i>Capsa altior</i> , Sow.	coarse gravel	12	G. Nocoia.
196	— —, var.	thin mud	5	Tumbez.
198	<i>Nucula polita</i> , Sow. 1 sp.	sand	7	Pan.
198	— <i>costellata</i> , Sow.	sandy mud	10	Pan.
198	— <i>gibbosa</i> , Sow.	soft mud	5	Tumbez.
198	— —, var.	mud	12	G. Nocoia.
199	<i>Amphidesma rupium</i> , Sow.	coarse grav. in cor- al reefs, & in rocks	...	Ld. Hood's Is.
199	— —, var.	.....	...	Gal.
200	— <i>punctatum</i> , Sow. 1½ sp.	.....	...	Gal.
200	<i>Neritina latissima</i> , Brod	on rocks in river	...	Real Llej.
201	— <i>globosa</i> , Brod. = N. inter- media, var. teste Rve. + N. tri- tonensis, Guil. teste Sow.	in river	...	Chiriqui (Nicoia, Sow.).
201	— <i>intermedia</i> , Sow	on stones in moun- tain stream	...	Is. Lions, Bay Mont.
201	— —, var.	in rivulet	...	San Lucas, Gulf Nocoia.
201	— <i>picta</i> , Sow.	mud bank partially overflowed with fr. water; abundant	...	Pan.
1833.	4 <i>Spondylus dubius</i> ? = S. prin- ceps, var. Brod.	on shells	10	Gulf of Tehuantepec.
5	<i>Triton lignarius</i> , Brod.	sandy mud	7-12	Porto Protrero & Panama.
5	— <i>tigrinus</i> , Brod.	sandy mud	11	Guacomayo.
6	— <i>lineatus</i> , Brod.	coral sand	6	Galapagos.
7	— <i>gibbosus</i> , Brod.	coarse sand	7	Panama and Monte Xti.
7	— <i>scalariformis</i> , Brod.	coarse sand	10	Bay of Montijo.
7	<i>Turbinella tuberculata</i> , Brod.	under stones	...	Galapagos.
7	— <i>armata</i> , Brod.	on coral reef	...	Elizabeth Is.
52	<i>Conus tiaratus</i> , Brod. = C. mi- nimus, Linn. var. teste Rve.	on sand in small ponds of sea water	...	Galapagos.
54	— <i>nux</i> , Brod.	.....	...	Galapagos.
54	— <i>Archon</i> , Brod.	sandy mud	12	Bay of Montija.
54	— <i>purpurascens</i> , Brod.	sandy mud in	...	Panama.
55	— <i>gladiator</i> , Brod.	clefts of rocks.	...	Real Lleijos.
55	— <i>Orion</i> , Brod.	soft sand in ditto	...	

1834. Page.	PROC. ZOO. SOC.—Cuming.	Station.	Depth in fms.	Locality.
18	<i>Conus Luzonicus</i> , var.	clefts of rocks	1. w.	Gal.
18	— <i>brunneus</i> , Wood	clefts of rocks	...	Gal., Puert. Portr., Pan.
19	— <i>diadema</i> , Sow.	clefts of rocks	1. w.	Gal.
19	— <i>regalitis</i> , Sow.	sandy mud in do.	...	Real Llejos.
21	<i>Gastrochæna ovata</i> , Sow. {	on <i>Spondyli</i>	...	Is. Perico.
21	— <i>truncata</i> , Sow.	on coral rocks	17	Is. Plata.
21	— <i>brevis</i> , Sow.	on <i>Spondyli</i>	...	Is. Perico.
22	— <i>rugulosa</i> , Sow.	in pearl oysters	3-7	Galap., Lord Hood's.
22	— <i>hyalina</i> , Sow.	in pearl oysters	3-7	Galap., Lord Hood's.
22	— <i>hyalina</i> , Sow.	with the last	3-7	Lord Hood's Is.
35	<i>Calyptræa rudis</i> , Brod. ....	.....	...	Pan., Real Llej.
35	— <i>corrugata</i> , Brod.	under stones	14	Guacom.
35	— <i>varia</i> , Brod. ....	.....	...	Gal., Ld. Hd's Is., Is. Muerte.
36	— (<i>Calypeopsis</i>) <i>imbricata</i> , } Brod. (Sow.)	on st. in sandy m.	6-10	Pan.
36	— () <i>lignaria</i> , Brod.	under stones	...	Real Llejos.
36	— () — var.	on shells in s. m.	4	Chiloe.
36	— () <i>tenuis</i> , Brod.	on liv. shells in m.s.	9	Samanco Bay.
37	— () <i>serrata</i> , Brod.	on dead shls., mud	6-11	Real Llejos, Is. Muerte.
37	— (<i>Syphopatella</i>) <i>sordida</i> , Brod.	on stones, sand	12	Pan.
39	— (<i>Crepidula</i>) <i>unguiformis</i> , { Lam.	inside dead shells, sandy mud	4-10	Pan., Chiloe.
40	— () <i>excavata</i> , Brod. ....	.....	...	Real Llejos.
40	— () <i>arenata</i> , Brod.	on sh. sandy mud	6-8	St. Elena.
40	— () <i>marginalis</i> , Brod.	stones & shls. s. m.	6-10	Pan., Is. Muerte.
40	— () <i>squama</i> , Brod.	under stones	...	Pan.
47	<i>Petricola robusta</i> , Sow.	in rocks	6-11	Pan., Is. Muerte.
47	— <i>amygdalina</i> , Sow.	in pearl oysters	3-6	Gal., Lord Hood's Is.
69	<i>Pholas cruciger</i> , Sow.	{ soft sandstone soft stone hard clay	½-tide 1. w. 13	Is. Puna, Guayaq. Bay Caraccas. G. Nocoioy.
69	— <i>calva</i> , Gray, MS... { adult jun.	hard stones	12 1. w.	{ Is. Perico.
70	— —, var. <i>nana</i>	hard stones	1. w.	Pan.
70	— <i>acuminata</i> , Sow.	limestone	1. w.	Pan.
71	— <i>curta</i> , Sow.	soft stone	1. w.	Is. Lions, Veragua.
72	— <i>cornea</i> , Sow.	trunk of tree	1. w.	Chiriqui, Veragua.
88	<i>Lyonsia picta</i> , Sow. {	attached to partic- cles of sand	11	Is. Muerte.
125	<i>Fissurella obscura</i> , Sow.	under stones	shore	Galap.
125	— <i>virescens</i> , Sow. [non F. vi- rescens, Guild. = <i>Barbadensis</i> , var. teste Sow.]	exposed situat.	1. w.	Pan.
125	— <i>nigropunctata</i> , Sow. ....	.....	...	Galap., Lobos Is.
125	— <i>macrotrema</i> , Sow.	under stones	shore	Gal., Lambeyeque, Lob. Is.
125	— <i>microtrema</i> , Sow.	under stones	...	Real Llejos.
126	— <i>inæqualis</i> , Sow.	under stones	shore	Gal., Guacom.
126	— <i>pica</i> , Sow.	dead shells	6-8	St. Elena, Galap.
127	— <i>Panamensis</i> , Sow.	dead shells	6-10	Panama.
128	— <i>crenifera</i> , Sow.	under stones	shore	Real Llejos.
148	<i>Chama frondosa</i> , Brod.	on coral rock	17	Is. Plata.
148	— —, var. <i>b.</i>	on pearl oyst. s.m.	10	G. Tehuantepec.
149	— <i>imbricata</i> , Brod.	on pearl oysters	3-7	Ld. Hood's Is., Pearl Is.
150	— —, var. <i>a.</i>	rocks and stones	1. w.	Galap.
150	— <i>producta</i> , Brod.	on stones, s. mud	10	G. Tehuan.
150	— <i>corrugata</i> , Brod.	stones	1. w.	Real Llej.
150	— <i>echinata</i> , Brod.*	on rocks	1. w.	Puert. Portr.
1835. 5	<i>Hipponyx radiata</i> , Gray (non <i>Desh.</i>) = <i>H. Grayanus</i> , Mke. }	on rocks	...	Pan., Galap.

* The old sp. spoken of are the young of *Ch. frondosa*, var. The young are *Ch. coralloides*, Rve.

1835. Page.	PROC. ZOOL. SOC.—Cuming.	Station.	Depth in fms.	Locality.
6	<i>Mouretia stellata</i> , Sow. [comp. <i>Gadinia pentagoniostoma</i>] ...	on rocks	1. w.	Real Llej.
6	<i>Siphonaria costata</i> , Sow.	on rocks in ex- posed situations	1. w.	Guacom.
7	— <i>maura</i> , Sow.	on rocks	...	Pan.
21	<i>Venus Columbiensis</i> , Sow.	coarse sand	1. w.	St. Elena.
21	— <i>subimbricata</i> , Sow.	fine sand	13	P. Portr., Acap. [Calif., Sow.]
22	— <i>multicostata</i> , Sow.	coarse sand	1. w.	G. Pan.
23	<i>Cytherea unicolor</i> , Sow.	coarse sand	6	Real Llej. [Xipix., Sow.]
23	— <i>concinna</i> , Sow.	fine sand	10	Pan.
41	<i>Venus histrionica</i> , Sow.	muddy sand	1. w.	Real Llej., St. Elena.
41	— <i>fuscolineata</i> , Sow.	sandy mud	13	Guacom.
42	— <i>discors</i> , Sow.	sandy mud	6-9	Guacom., St. Elena.
43	— <i>crenifera</i> , Sow.	sand	1. w.	Payta, St. Elena.
44	— <i>ornatissima</i> , Brod. ... 1 sp.	sandy mud	10	Pan.
44	— <i>pulicaria</i> , Brod. [= <i>cingu- lata</i> , Lam. teste Sow.]	sandy mud	3	Chiriqui and Tumaco.
45	<i>Cytherea tortuosa</i> , Brod.	sandy mud	6	Pan., Xipix.
45	— <i>affinis</i> , Brod.	sandy mud	10	Xipix.
46	— <i>Dione</i> , var. β . = <i>C. lupinaria</i>	soft mud	5	Tumbez.
46	— <i>vulnerata</i> , Brod.	sandy mud	6	Real Llej.
46	— <i>argentina</i> , Sow.	sand-banks	1. w.	G. Nocoioyo.
84	<i>Pinna rugosa</i> , Sow.	sand-banks	...	Is. Rey, B. Pan.
84	— <i>maura</i> , Sow.	muddy banks	...	Pan.
84	— <i>tuberculosa</i> , Sow.	muddy banks	...	Pan.
93	<i>Pandora brevifrons</i> , Sow.	sand	10	Pan.
94	<i>Buccinum modestum</i> , Powis ...	muddy gravel	7-17	B. Mont.
95	<i>Nassa nodifera</i> , Pow.	coral sand	6-10	Gal., Pan.
95	— <i>festiva</i> , Pow.	sandy mud	6-10	Pan., St. Elen.
96	— <i>pallida</i> , Pow.	sandy mud	6	Pan.
96	— <i>scabriuscula</i> , Pow.	sandy mud	12	Bay Mont.
109	<i>Pecten subnodosus</i> , Sow. { var. β . var. γ . }	sandy mud } and coral sand }	10-17	{ Is. Plata. Gulf Tehuant.
109	— <i>magnificus</i> , Sow. { 1 sp. var. γ . }	coral sand }	6 17	Galap. Is. Plata.
109	— <i>tumidus</i> , Sow.	sandy mud	6-10	St. Elena, Salango.
194	<i>Mitra tristis</i> , Swains.	sandy mud	6-10	St. Elena, Galap.
194	— <i>effusa</i> , Swains.	sandy mud	12	Guacom., Galap.
194	<i>Tiara foraminata</i> , Swains. = <i>Vo- luta lens</i> , Wood	sandy mud and gravel }	6-14	St. Elena, Is. Plata, Pan.
194	— <i>muricata</i> , Swains.	sandy mud	6	Galap.
1840.				
139	<i>Murex plicatus</i> , Sow. jun.	coarse sand	12	G. Nocoioyo.
1841.				
51	<i>Ranella nana</i> , Sow. jun.	coarse sand	7	Panama. ["Ins. Philip."]
52	— <i>albofasciata</i> , Sow. jun.	coarse sand	10	Panama. Ditto.
1842.				
49	<i>Siphonaria characteristica</i> , Ree..	.....	...	Pan.
197	<i>Vermetus eburneus</i> , Ree. ....	.....	...	?
1843.				
23	<i>Lima angulata</i> , Sow. jun.	sandy mud	12-20	Pan.
208	<i>Natica Panamaënsis</i> , Récl.	fine sand	10	Pan.
210	— <i>uberina</i> , Val. in Humb.	muddy sand	5	Casma, Peru.
213	— <i>Gallapagosa</i> , Récl. [? = <i>N. otis</i> , Z.B.V.]	coral sand	...	Albemarle Is., Gal.
185	<i>Pleurotoma cedo-nulli</i> , Ree.	sandy mud	10	Pan.
30	<i>Cyclostoma giganteum</i> , Sow.	woods	...	Panama.
154	<i>Terebra aspera</i> , Hinds.	sandy mud	6-10	Pan., Mte Xti., St. Elen.
156	— <i>elata</i> , Hinds.	coarse sand	15	Bay Mont.
160	— <i>ornata</i> , Gray (P.Z.S. 1834, p. 62)	coral sand (mud	5-7 7	Gal. Panama, Hinds.)
166	— <i>aciculata</i> , Hds. (quasi Lam.)	.....	...	Xipix. (Acapulco, Sonso- nati, Hds.)

1844. Page.	PROC. ZOO. SOC.—Cuming.	Station.	Depth in fms.	Locality.
17	<i>Lithodomus plumula</i> , Hanl.....	in Spondyli	...	Pan.
59	<i>Tellina Cumingii</i> , Hanl.	coral sand	...	Guacom.
60	— <i>rubescens</i> , Hanl.	sandy mud	...	Pan., Tumbes.
61	— <i>regia</i> , Hanl.	coarse sandy mud	7	Real Llej.
61	— <i>laceridens</i> , Hanl.	soft sandy mud	5	Tumbes.
		sandy mud	3	Chiriqui.
62	— <i>princeps</i> , Hanl.	soft sandy mud	5	Tumbes.
70	— <i>insculpta</i> , Hanl. 1 sp.	sandy mud	3	Chiriqui.
71	— <i>felix</i> , Hanl.	sandy mud	6-10	Pan.
142	— <i>gubernaculum</i> , Hanl.	sandy mud	7	Real Llej. [Thes.)
144	— <i>elongata</i> , Hanl.	sand	3	Chiriqui (Chiriqui, Sow.
144	— <i>Dombel</i> , Hanl.	sandy mud	12	Pan., var. Tumbes.
147	— <i>plebeia</i> , Hanl.	sandy mud	7	Real Llej.
147	— <i>aurora</i> , Hanl.	soft sandy mud	10	Pan.
148	— <i>hiberna</i> , Hanl.	sandy mud	6-11	Pan., Guayaq.
121	<i>Triton pagodus</i> , Rve. ....	.....	...	Bay Montija.
121	— <i>pictus</i> , Rve.	under stones	l. w.	Galap.
12	<i>Scalaria mitræformis</i> , Sow. jun.	.....	...	Guacom.
51	<i>Columbella rugulosa</i> , Sow. ....	.....	...	Galap.
51	— <i>atramentaria</i> , Sow. ....	.....	...	Chatham Is., Galap.
52	— <i>nigricans</i> , Sow. ....	.....	...	Galap.
1845.				
11	<i>Artemis simplex</i> , Hanl. [= <i>Dosinia Dunkeri</i> , Phil.].....	} .....	...	Pan., St. Elen.
11	— <i>subquadrata</i> , Hanl. ....	.....	...	St. Elena.
15	<i>Donax navicula</i> , Hanl. ....	.....	...	Gulf Nicoya.
15	— <i>gracilis</i> , Hanl.	{ var. b. var. c. ....	...	Bay Guayaq.
			...	Chiriqui.
			...	Caraccas.
17	— <i>assimilis</i> , Hanl. ....	.....	...	Pan.
107	<i>Ostrea Columbiensis</i> , Hanl.	rocks	$\frac{1}{2}$ -tide	St. Elena.
42	<i>Glandina obtusa</i> , Pfr.	leaves of bushes	...	Real Llej.
129	<i>Helix spirulata</i> , Pfr.	trunks of trees	...	Ditto.
130	— <i>Nystiana</i> , Pfr. ....	.....	...	Ditto.
139	<i>Littorina aspera</i> , Phil. ....	.....	...	Conchagua.
139	— <i>porcata</i> , Phil.	high exposed rocks	...	Galap.
142	? — <i>aberrans</i> , Phil.	rocks	$\frac{1}{2}$ -tide	Pan.
53	<i>Mitra gratioa</i> , Rve.	coral sand	7	Gal.
59	— <i>gausapata</i> , Rve. ....	.....	10	Gal.
1846.				
117	<i>Chama Panamensis</i> , Rve.	on stones	...	Pan.
119	— <i>Janus</i> , Rve.	on large <i>Avicula</i>	...	Gal.
1848.				
41	<i>Planorbis Panamensis</i> , Dk.	in streams	...	Pan.
97	<i>Cypræa pulla</i> , Gask. (described 1846, p. 24) .....	} .....	...	Gal., Guay.
49	<i>Turbo saxosus</i> , Rve. ....	.....	...	W. Columb.
1849.				
116	<i>Anomia fidenas</i> , Gray	on <i>Pinne</i>	l. w.	Pan.
117	— <i>adamas</i> , Gray	on <i>Av. marg.</i>	9	Gal., Lord Hood's Is.
134	<i>Tornatellina Cumingiana</i> , Pfr. ....	.....	...	Real Llej.
1850.				
154	<i>Phos turritus</i> , A. Ad.	coral sand	6-10	Pan.
1851.				
109	<i>Nassa angulifera</i> , A. Ad. ....	.....	10	Gal.
110	— <i>nodicincta</i> , A. Ad. ....	.....	7	Gal.
1855.				
173	<i>Scintilla Cumingii</i> , Desh. ....	.....	...	Panama.
183	<i>Erycina dubia</i> , Desh. ....	.....	...	Is. Muerte, Guayaq.

The following species occur in Reeve's *Conchologia Iconica*, from places visited by Mr. Cuming, and were probably collected by that gentleman.

late.	Sp.	Name.	Station.	Depth in fms.	Locality.
1	2	<i>Lucina punctata</i> .....	.....	1. w.	Panama.
7	33	— <i>fibula</i>	sandy mud {	6	St. Elena.
8	49	— <i>eburnea</i>	sandy mud	1. w.	Philippines.
9	25	— <i>cornea</i> [Mysia, <i>H. & A. Ad.</i>]	coarse sand	11	Pan., St. Elen.
11	68	— <i>calculus</i>	coarse sand	10-13	G. Nicoya.
6	29	<i>Cardium biangulatum</i> [=magnificum, <i>Desh.</i>]	coral sand	10-13	G. Nicoya.
8	43	— <i>graniferum</i> .....	.....	17	Is. Plata, St. Elena.
17	86	— <i>consors</i>	sandy mud	.....	G. Nicoya, Xipix.
7	31	<i>Fig. a, b. Pecten ventricosus</i> , <i>Sow.</i> Thes. = <i>P. tumidus</i> , <i>Sow.</i> P. Z. S., non <i>Turt.</i>	.....	6-11	St. Elena, Guacom.
00	552	<i>Helix uncigera</i> , <i>Petit</i> , Guér. Mag. Zool. 1838, pl. 113.	.....	.....	St. Elen., &c., Philippines.
24	61	<i>Fig. a, b. Patella diaphana</i> , <i>Rve.</i> .....	.....	.....	Panama.
33	99	<i>Fig. a, b. — striata</i> , <i>Rve.</i> [as of <i>Quoy</i> & <i>Gaim.</i> , but quite distinct from their species, which is given afterwards under the same name.] .....	.....	.....	Cent. Amer. (<i>Cum., Kell.</i>)
37	117	<i>Fig. a, b. Patella stipulata</i> , <i>Rve.</i> .....	.....	.....	Galapagos.
5	21	<i>Turbo squamiger</i> , <i>Rve.</i> .....	.....	.....	Panama.
3	3	<i>Strombus galeatus</i> = <i>S. crenatus</i> , <i>Sow.</i> ...	reefs	7	Gal.
14	32	— <i>granulatus</i>	sandy mud	1. w.	G. Nicoy.
16	38	— <i>gracilior</i>	sandy mud	6-8	St. Helena and Gal.
3	15	<i>Chiton sulcatus</i>	under stones	6-12	St. Elena and Pan.
6	29	— <i>crenulatus</i>	under stones	below	Ld. Hood's & Jas. I., Gal.
10	54	<i>Chiton hirundiniformis</i> .....	.....	1. w.	Pan.
4	11	<i>Turritella nodulosa</i> , <i>King</i> , Z. J. v. 347, = <i>T. papillosa</i> , <i>Kien.</i>	sandy mud	ditto	Korean Archip., <i>Belcher</i> ;
10	47	— <i>fascialis</i> , <i>Rve.</i>	coarse sand	.....	teste <i>Rve.</i> , Gal.; and
11	63	— <i>rubescens</i> , <i>Rve.</i>	coarse sand	.....	Peru, teste <i>Cum.</i>
24	134	<i>Cypræa fusca</i> , <i>Gray</i> .....	.....	6-10	Gulf Dulce.
13	59	— <i>nigropunctata</i> , <i>Gray</i> , Z. J. iv. 11, = <i>C. irina</i> , <i>Kien.</i>	under stones	7	B. Mont.
41	58	<i>Conus varius</i> , <i>Linn.</i> 1170 [<i>Rve.</i> pl. 12, non 13, sp. 58.] Var. β . = <i>C. pulchellus</i> , <i>Sow.</i> not <i>Swains.</i> = <i>C. interruptus</i> , <i>Wood</i> , Suppl.	.....	7	B. Mont.
12	99	<i>Pleurotoma cincta</i> , <i>Rve.</i> = <i>modesta</i> , <i>Sow.</i>	sandy mud	.....	Gal. (also B. Guayaquil,
12	49	<i>Fig. a, b. Natica unifasciata</i> , <i>Rve.</i> [? not <i>Lam.</i>]	mud banks	.....	Gal. [teste <i>Sow.</i>)
11	57	<i>Purpura Carolensis</i> , <i>Rve.</i> [= <i>triangularis</i> , <i>Blainv.</i>]	under stones	.....	Philippines.
2	9	— <i>columellaris</i> , <i>Lam.</i>	exposed rocks	1. w.	Gal.
3	14	— <i>planospira</i> , <i>Lam.</i>	exposed rocks	.....	James Is., Gal.
11	60	— <i>alveolata</i> , <i>Rve.</i>	under stones	.....	Pan.
9	43	— <i>undata</i> , <i>Rve.</i> [= <i>biserialis</i> , <i>Blainv.</i> non <i>Rve.</i> , var. Non <i>undata</i> , <i>Lam.</i> = <i>fasciata</i> , <i>Rve.</i> pl. 9. f. 45.]	under stones	1. w.	St. Elena.
3	17	<i>Ricinula heptagonalis</i> , <i>Rve.</i> P. Z. S. 1846 [? <i>ubi</i>]	under stones	.....	Pan.
4	23	— <i>alveolata</i> , <i>Kien.</i> [comp. <i>Purp. alv.</i>] .....	.....	1. w.	Pan.
5	32	— <i>contracta</i> , <i>Rve.</i> .....	.....	.....	Pan., St. Elen.
5	33	— <i>zonata</i> , <i>Rve.</i>	under stones	1. w.	Charles Is., Gal.

Plate.	Sp.	Name.	Station.	Depth in fms.	Locality.
6	13	<i>Cassis tenuis</i> , <i>Gray</i> , in <i>Wood</i> , pl. 8. f. 4, = <i>C. Massenæ</i> , <i>Kien</i> .	sandy mud	6	Gal.
6	14	— <i>coarctata</i> , <i>Sow.</i> , <i>Wood</i> , f. 5	crev. of rocks	.....	Gal.
1	5	<i>Oniscia tuberculosa</i> , <i>Sow.</i> Gen. p. 2	clefts of rocks	l. w.	Gal.
9	62	<i>Buccinum Coromandelianum</i> , <i>Lam.</i> .....	.....	.....	Coromandel, Panama.
10	71	— <i>biliratum</i> , <i>Rve.</i> .....	.....	.....	Gal.
10	73	— <i>nigrocostatum</i> , <i>Rve.</i>	under stones	l. w.	Pan.
11	80	— <i>pulchrum</i> , <i>Rve.</i> .....	.....	.....	Gal.
11	84	— <i>cinis</i> , <i>Rve.</i>	under stones	.....	Gal.
11	89	— <i>pastinaca</i> , <i>Rve.</i> .....	.....	.....	B. Mont.
2	6	<i>Monoceros grande</i> , <i>Gray</i> , Z. B. V. p. 124, = <i>Purpura Grayii</i> , <i>Kien</i> .	crev. of rocks	l. w.	James Is., Gal.
3	11	— <i>cingulatum</i> , <i>Lam.</i> = <i>Buc. pseudodon</i> , <i>Burrows</i> . "Quite inseparable from the present group:" [except by the Lathy- roid plaits, and the Turbinelloid opercu- lum, which <i>Kien</i> had already described.]	clefts of rocks	l. w.	Pan.
11	37	<i>Triton Chemnitzii</i> = <i>Cassidaria setosa</i> , <i>Hds.</i> [? ubi].	sandy mud	6	Pan.
16	65	— <i>Sowerbii</i> = <i>T. lineatus</i> , <i>Sow.</i>	sandy mud	6	Gal.
17	72	— <i>reticulatus</i> ? = <i>Murex reticulatus</i> , <i>Dillw.</i> = <i>T. turriculatus</i> , <i>Desh.</i> = <i>Trito-</i> <i>nium intertextum</i> , <i>Pfr.</i> = <i>T. reticulatus</i> <i>Mediterraneus</i> , <i>Sow.</i>	.....	6	Mediterranean, Gal. &c
16	124	<i>Mitra attenuata</i> , <i>Swains.</i>	rocky bottom	28	Is. Caña, Centr. Am.
22	176	— <i>sulcata</i> , <i>Swains.</i>	fine black sand	4	Mouth of Chiriqui, Ve-
1	3	<i>Voluta harpa</i>	sandy mud	8	St. Elen. [ragua.
6	40	<i>Fissurella Mexicana</i> .....	.....	.....	Real Llej.
8	56	— <i>rugosa</i>	under stones	l. w.	Gal.
9	15	<i>Oliva Julieta</i>	sandy mud	6	Real Llej.
11	17	— <i>splendidula</i>	sandy mud	l. w.	Is. Tobago, B. Pan.
14	29	— <i>polpasta</i> , <i>Ducl.</i>	sandy mud	13	B. Mont., Veragua.
20	49	— <i>kaleontina</i> .....	.....	6-12	B. Guay., Gal.
2	6	<i>Turbinella varicosa</i>	crev. of rocks	.....	Gal.
5	27	— <i>nodata</i> , <i>Mart.</i> = <i>Murex rigidus</i> , <i>Wd.</i> .....	.....	l. w.	Pan.
3	7	<i>Fasciolaria salmo</i> , <i>Wood</i> [<i>Pyrula</i> , <i>Gray</i>], = <i>F. Valenciennesii</i> , <i>Kien</i>.	.....	.....	Real Llej.
32	157	Fig. 157, 163. <i>Murex alveatus</i> , <i>Kien</i> . p. 24. pl. 46. f. 2.	under stones	l. w.	Pan.

The following species, to which is appended the authority of Mr. Cumming, are figured in Sowerby's *Conchological Illustrations*.

No.	Fig.	Name.	Locality.
17	17	<i>Fissurella gibberula</i> , <i>Lam.</i>	Panama.
18		<i>Bulinus princeps</i> , <i>Brod.</i> Z. P. 1832 [? ubi. = <i>zebra</i> , var.]	Conchagua.
85		— <i>eschariferus</i> , <i>Sow.</i>	Galapagos.
87		— <i>rugulosus</i> , <i>Sow.</i>	Galapagos.
	45	— <i>Jacobi</i> , <i>Sow.</i>	Galapagos.
	42	— <i>ustulatus</i> , <i>Sow.</i>	Galapagos.
119	23	<i>Murex dubius</i> , <i>Sow.</i> = <i>M. aculeatus</i> , <i>Wood</i>	Panama.
126	41	<i>Cypræa suffusa</i> , <i>Gray</i> [= <i>C. armadina</i> , <i>Ducl.</i> teste <i>Kien.</i>]	Galapagos.
31		<i>Ovulum æquale</i> , <i>Sow.</i>	Panama.
25		<i>Conus tornatus</i> , <i>Brod.</i> [<i>Xipixapi</i> , teste <i>Brod.</i> P. Z. S. 1833, p. 53.]	Panama.
2	2	<i>Amphidesma pulchrum</i> , <i>Sow.</i> [B. Caraccas, teste <i>Sow.</i> P. Z. S. 1832, p. 57.]	St. Elena: var. Panama.
59		<i>Neritina pulchra</i> , <i>Sow.</i>	Panama.

The following species occur in Sowerby's *Thesaurus Conchyliorum*, on the authority of Mr. Cuming.

No.	Page.	Plate.	Fig.	Name.	Station.	D.in fms.	Locality.
12	86	22	39, 40	<i>Lima angulata</i> , Sow. ....	.....	...	Panama.
15	86	22	41, 42	— <i>arcuata</i> , Sow.	u. coral sdy. m.	... ...	Ld. Hood's Is. Panama.
51	129	37	112-13	<i>Columbella cribraria</i> , Lam.	u. s.	...	Pan., very common.
38	163	44	71	<i>Terebra frigata</i> , Hds. = <i>T. gracilis</i> , Gray.	cor. sd.	6	Galap.
18	284	57	42	<i>Tellina virgo</i> , Hanl. P. Z. S. 1844, p. 143	.....	...	Chiriqui, W. Col.
36		77	153-5	<i>Marginella cærulescens</i> , Lam. = <i>M. prunum</i> , Gmel. [not <i>M. sapotilla</i> , Hds.]	.....	...	Panama.
38	479	99	16-19	<i>Ovulum gibbosum</i> , Lam. ....	.....	...	Panama.
76	529	{ 112, 115	{ 108-9 217-18	{ <i>Neritina Michaudii</i> , Recl. Rev. Zool. } 1841, p. 315.	.....	...	Panama.
48	576	123	71	<i>Bulla Quoyii</i> , Gray, MS.	cor. sd.	6-8	Galap.
52	577	123	76	— <i>rufolabris</i> , A. Ad.	fine sd.	6	Galap.
53	577	123	77	— <i>punctata</i> , A. Ad.	sdy. m.	10	Panama.
21	618	127	12	<i>Cytherea undulata</i> , Sow. jun. = <i>C. planulata</i> , var., Sow. sen.	sdy. m.	9	Salango.
69		179	59, 77	<i>Cerithium ocellatum</i> , Sow. [not Brug.] = <i>C. irroratum</i> [non] interruptum, Gd.	.....	...	Gulf Cal., Galap.
71		179	60	— <i>nebulosum</i> , Sow. = <i>C. maculosum</i> , Kien.	.....	...	Galapagos.
70		178	48	— <i>adustum</i> , Sow. non Kien. ? = <i>C. maculosum</i> , var.	.....	...	Galapagos.
85	869	182	155-6	— <i>Gallapaginis</i> , A. Ad. ? = interruptum, Mke.	.....	...	Galapagos.
69	887	186	280-2	— <i>varicosum</i> , Sow. ....	.....	...	Real Llejos, at roots of mangroves.

33. At the very time that Mr. Cuming was prosecuting his researches on the West Coast of South America, the Chevalier Alcide D'Orbigny was engaged in a similar exploration of the continent generally, from the years 1826-1833. In July 1833, he reached the Pacific coast at Arica, whence he proceeded to Callao, stopping at Cobijo, Islay, and Arequipa. Thence he returned to Europe *viâ* Valparaiso. The result of his labours is described in the "Voyage dans l'Amérique Méridionale, le Brésil, la République Orientale d'Uruguay, la République Argentine, la Patagonie, la République du Chili, la République de Bolivie, la République de Pérou, exécuté pendant les années 1826-1833, par Alcide D'Orbigny. Mollusca, Paris, 1847." Among the services rendered to malacological science by Dr. Gray*, it is not the least that he has obtained the type specimens described in this work for the British Museum, where they may be seen by students on application. The sea-shells are frequently by no means in good condition, in which respect they contrast most unfavourably with the magnificent specimens brought in such abundance by Mr. Cuming; nor is the identification of species always to be relied on. In the Calyptræidæ especially, M. D'Orbigny has added to the confusion which was before characteristic of the nomenclature in that interesting but unfortunate family. Both the specimens and the work, however, are extremely valuable, especially from the materials afforded for a comparison of the faunæ of the Atlantic and Pacific coasts; and the publication of a cheap catalogue of them by Dr. Gray, Oct. 1854, enables ordi-

* Perhaps the attention now given to the animals of Mollusca, and the reform of systems founded on the shells alone, are due to the labours of Dr. Gray more than to any other man living. It is a source of unfeeling regret that the benefit of his works is very much overlooked, in consequence of his not conforming to the principles of nomenclature published under the auspices of the British Association (Reports, 1842, pp. 105-121).

nary students to make use of the information they afford. But in the part of South America to which our present inquiries are directed, which is mainly from Panama to the Bay of Guayaquil, it does not appear that M. D'Orbigny himself traveled. The shells quoted from this coast were principally collected by M. Fontaine, or copied from the descriptions of Mr. Cuming's stores. Those which are connected with the West North American province are as follow. The numbers refer to the "List of the Shells of South America in the Collection of the British Museum. 1854." Some notes are added on doubtful species, from a study of the specimens.

No.

279. *Turritella Broderipiana*, D'Orb. Peru, Payta.

= *T. goniostoma*, Val.

301. *Natica glauca*, Val. = *N. patula*, Sow. Peru, Payta.

320. *Cypræa nigropunctata*, Gray. Payta.

345. *Columbella lanceolata*, Sow. Peru, Payta.

356. *Purpura hæmastoma*, Lam. Brazils.

These specimens are of the *P. Floridana* type, punctured like the Mazatlan *P. biserialis*, but with the tubercles not developed. Some of the shells appear to be the true *P. undata*, Lam.

359. — *scalariformis*, Blainv. Guayaquil.

= *Cuma kiosquiformis*, var.

365. — *bicostalis*, Lam. Brazils.

Very like No. 364, which is probably the true *P. undata* of Lam., not of Val. and C. B. Ad. Whether the Lamarckian *P. bicostalis* be this shell, or an E. Indian species, as supposed by Blainv., is not known. Reeve assigns the name to the Mazatlan shell.

373. *Cerithium varicosum*, Sow. Guayaquil.

374. — *Montagnei*, D'Orb. Guayaquil.

(Quite distinct from *Cerithidea varicosa*.)

407. *Calyptræa* (*Calypeopsis*) *quiriquina*, D'Orb. Chili; Conception.

= (Tablet 555) *C. rugosa*, Desh., var. Probably a form of *Crucibulum spinosum*.

408. — (—) *rugosa*, Desh. Chili.

= *C. lignaria*, Brod., non *C. rugosa*, Less. Tablet 558 is the extreme form, *lignaria*; 557, intermediate between that and 555.

409. — (—) *imbricata*, Sow. Peru; Payta.

= *C. rugosa*, Less., not Desh. Tablets 559, 560 are the true *Crucibulum imbricatum*: 561, ? do. var. *Broderipii*; 556, ?? do. var. *Cumingii*.

410. — (—) *auriculata*, D'Orb. Peru; Payta.

= *Crucibulum spinosum*, Sow., not *P. auriculata*, Chemn.

411. — (*Trochatella*) *trochiformis*, D'Orb. = *T. radians*, Lam. Chili and Peru.

412. — (—) *mammillaris*, D'Orb. Peru; Payta—Guayaquil.

= *Galerus unguis*, Brod., not *G. mammillaris*, Brod.

415. *Crepidula aculeata*, Gmel. Brazils; Patagonia.

416. — *Patagonica*, D'Orb. Patagonia.

Probably = *C. dilatata*, var. Some species are perhaps *C. nivea*, var.

417. — *protea*, D'Orb. East coast; Patagonia; Brazils.

Tablet 573, probably dead specimens of *C. incurva*, or *onyx*, or both.

574

C. nivea.

419. — *foliacea*, Brod. Bolivia.

Possibly a var. of *C. dilatata*; like *C. Lessonii* of *C. nivea*.

420. — *arcuata*, Brod. Peru; Payta.

Probably = *C. dilatata*, var.

440. *Acmæa scurra*, Less. Chili, Arica (on *Fucus*).

= *Scurria mitra*, Gray, from Less. and Esch.

441. — *scutum*, Esch. Chili; Bolivia; Peru.

= *A. patina*, var.

449. *Patella maxima*, D'Orb. Peru; Payta.

= *P. Mexicana*.

- No.
 482. *Pholas curta*, Sow. "Ecuador; Isle de los Leones."
 This island is in Veragua, teste Cuming. The shell is probably copied.
 545. *Donax radiata*, Val. [?] Peru; Arica.
 587. *Venus planulata*, Sow. Chili; Coquimbo.
 607. — *Solangensis*, D'Orb. Ecuador; Xipixapi.
 = *Cytherea radiata*, Sow.
 608. — *Paytensis*, D'Orb. Peru; Payta.
 = *Cytherea affinis*, Brod.
 610. — *neglecta*, Gray. Peru; Payta.
 611*. — *Californiensis*, Brod. (non *Conr.*) Peru; Payta (*Fontaine*).
 776. *Ostrea æquatorialis*, D'Orb. Ecuador; Guayaquil; Is. de la Luna.

34. M. Paul Emile Botta, who has since acquired such deserved reputation for his Assyrian researches, appears to have been a naval surgeon in early life, and is quoted by French writers for several shells belonging to the W. American faunas. The habitats assigned are in some instances correct, but error has evidently crept into others.

<i>Pyrula bezoar</i> , Lam. China. "California, Botta." Blainv. Ann. Nouv. du Mus.	p. 234	No. 68
<i>Purpura chocolatta</i> . [S. America.] California, Botta.....	240	80
— <i>cornigera</i> [= <i>Mon. brevidentatum</i> , Gray]. Mazatlan, Botta, (fragment)	213	28
— <i>fusiformis</i> . N. Guinea, Lesson & Garnot. Mazatlan, Botta, 229	61	
M. Botta's shell, if from Mazatlan, is probably the allied <i>Fusus pallidus</i> .		
— <i>triangularis</i> . Mazatlan, 1 sp.....	223	466
— <i>triserialis</i> . California, 1 sp.	226	53
— <i>spirata</i> . Sandwich Islands.....	252	105
— <i>columellaris</i> . Chili.....	220	40
— <i>costata</i> . Mazatlan, 1 sp.	231	63
<i>Pleurotoma maura</i> . Mazatlan	Kiener 59	37
— <i>Bottæ</i> . Mazatlan, 1 sp.	Kiener 26	33

35. M. Blainville, in his Monograph of *Purpura*, "Nouvelles Annales du Muséum," 1832, vol. i. pp. 189–263, besides the species brought by M. Botta, describes the two following, of which one, probably both, are from the West N. American coast. This accurate work, which does not seem to have been fully understood by recent English authors, or allowed priority by writers in his own country, contains a very interesting analysis of the geographical distribution of the tribe.

Page.	No.	Pl.	Fig.	
238	75	11	11.	<i>Purpura biserialis</i> = <i>bicostalis</i> , Rve.; not <i>P. bicostalis</i> , Lam. teste Blainv.
232	65	11	9.	— <i>costularis</i> , Lam. closely resembles <i>Murex nux</i> , Rve.

36. In Guérin's Magasin de Zoologie for May 1833, appear figures and descriptions of the following shells, by M. Duclos.

Pl.	Fig.	
22	1.	<i>Purpura sanguinolenta</i> , Ducl. = <i>Pollia hæmastoma</i> , Gray.
22	2.	— <i>truncata</i> , Ducl. = <i>Monoceros muricatum</i> . Chili. [!] (Voy. Ven. pl. 9. f. 2, 2a.)
†1	3.	— <i>nympha</i> . [?= <i>costata</i> , Blainv.]
1	5.	— <i>kiosquiformis</i> . N. Holland. [!]
1	6.	— <i>angulifera</i> . [= <i>Cuma tectum</i> .]
2	8.	— <i>centiquadra</i> , Val. MS. = <i>speciosa</i> , Val. Voy. Ven. = <i>triserialis</i> , Blainv.
20		<i>Oliva polpaster</i> , Ducl. [?= <i>Cumingii</i> , Rve. var.] Panama.

† This plate and the next are marked "Ann. Sc. Nat. vol. 26." The writer says that they are from the vol. for May 1832.

37. In the "Journal of Researches into the Geology and Natural History of the various countries visited by H.M.S. Beagle, under the command of Capt. Fitzroy, R.N., 1832-1836: by Ch. Darwin, M.A., F.R.S., London, 1839," chap. 19, pp. 453-478, is an extremely interesting account of the zoology of the Galapagos (which were visited in Sept. 1835), particularly of the reptiles; but no lists are given of the shells collected. The list of the Galapagos Mollusca, drawn out by Mr. Darwin with the assistance of Mr. Cuming, was unfortunately not preserved; and the collections were distributed without any catalogue having been made of them.

38. Perhaps the earliest specimens of U. Californian shells seen in this country were those sent from Oregon by Lady Katherine Douglas (now Lady K. Wigram). It would appear that that lady procured shells wherever she could, as some are well known to be from the Sandwich Islands, and many belong to the Gulf Fauna. The collection therefore needs careful sifting before it can be regarded as of any geographical authority. It contains, however, several very interesting and new shells, which have not even yet been found again by subsequent travelers. The following are the species that have been observed.

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|---|---|
| <i>Lutraria maxima</i> , Mid. Calif. and Columbia R. = <i>Tresus maximus</i> , Gray. | <i>Ziziphinus filiosus</i> . |
| = <i>Mactra maxima</i> , Rve. C. I. 1; 4. | <i>Turbo fluctuatus</i> . |
| <i>Tellina nasuta</i> , Conr. R. Col. | <i>Nerita</i> ? <i>scabriuscula</i> . |
| <i>Tellina inquinata</i> , Desh. | <i>Neritina picta</i> . |
| <i>Tellina</i> , like <i>Dombeyi</i> . R. Col. | <i>Hipponyx</i> , sp. ind. |
| <i>Saxidomus squalidus</i> , Desh. Cal. and R. Col. | <i>Turritella goniosoma</i> . |
| "Copiapo, Chili," Desh. in B. M. Ven. Cat. p. 188. no. 5. | <i>Cerithium maculosum</i> . |
| <i>Saxidomus Nuttalli</i> , R. Col. | <i>Trivia suffusa</i> . R. Col. |
| <i>Chione neglecta</i> , Gray. Cal. and R. Col. | <i>Trivia Solandri</i> . |
| <i>Chione rudrata</i> , Desh. Cal. | <i>Torinia areola</i> , Desh. [?] := <i>T. variegata</i> , Maz. Cat. p. 407. |
| <i>Trigona mactroides</i> [?] <i>radiata</i> , jun.]. Cal. | <i>Natica bifasciata</i> , Gray. |
| <i>Mactra similis</i> , Gray. | <i>Natica</i> , like <i>maroccana</i> . |
| <i>Cardium Nuttallianum</i> . Fort Simpson. | <i>Neverita</i> , sp. ind. |
| <i>Mytilus</i> ? <i>edulis</i> . Cal. and R. Col. | <i>Cancellaria reticulata</i> , Lam. (appears a worn <i>C. urceolata</i>). |
| <i>Mytilus Californianus</i> , Conr. [?]. | <i>Oliva</i> ? <i>venulata</i> . |
| <i>Pectunculus Californicus</i> . | <i>Olivella lineolata</i> . |
| <i>Pectunculus</i> , like <i>maculatus</i> . | <i>Mitra</i> , like <i>tristis</i> . |
| <i>Spondylus</i> ? | <i>Columbella</i> , like <i>fuscata</i> . |
| <i>Placunanomia cepio</i> , Gray, Cat. Anom. B. M. p. 11. no. 6. "California, Lady Katherine Wigram." | <i>Columbella hamastoma</i> , Sow. Cal. |
| <i>Placunanomia alope</i> , Gray, Cat. Anom. B. M. p. 12. no. 7. "California, Lady Katherine Wigram." | <i>Columbella strombiformis</i> . Sandw. Is. [?] |
| <i>Anomia lampe</i> , Gray, Cat. Anom. B. M. p. 19. no. 14. "California, Lady Katherine Wigram." | <i>Columbella castanea</i> . |
| <i>Chiton Sitkensis</i> , Rve. (non Mid. = <i>Stelleri</i> , Mid.) Cal. | <i>Columbella pygmæa</i> . |
| <i>Katherina Douglasiæ</i> , Gray = <i>Chiton tunicatus</i> , Sow. Cal. | <i>Purpura crispata</i> , resembles <i>lapillus</i> . |
| <i>Haliotis rufescens</i> (and others). | <i>Purpura crispata</i> , varieties. Cal. & R. Col. |
| | <i>Purpura Conradi</i> , Nutt. R. Col. |
| | <i>Purpura</i> , n. s. (smooth, like <i>Buccinum</i>). Cal. The same species appears as "W. Coast America, Hinds." |
| | <i>Nassa tiarula</i> , Kien. = <i>tegula</i> , Rve. |
| | <i>Fusus carinatus</i> . "Labrador." |
| | <i>Fusus Dupetithouarsii</i> . |
| | <i>Murex triatalus</i> , Sow. |

39. During the years 1834-5, Thomas Nuttall, Esq., for many years Professor of Natural History at Harvard University, Cambridge, U.S., visited the then almost unsearched shores of California, by a journey across the Rocky Mountains under the escort of a trading company. Although his

object was principally botanical, his love of natural science induced him to collect all the shells he could meet with; and with such good success, that many of his species have not to this day been again discovered. The peculiar interest attaching to his researches is, that he did not visit any part of the coast north of Oregon or south of San Diego. There is no danger, therefore, of any admixture with the shells of the Gulf district; and his collections may be regarded as the type of the Californian fauna strictly so called. Leaving the American shores, Mr. Nuttall visited the Sandwich Islands, whence he only brought one species belonging to the American fauna, viz. *Hipponyx Grayanus*, on a *Pinna*. On his return to the United States, *viâ* Cape Horn, the description of the marine shells was undertaken by Mr. T. A. Conrad, and of the land and freshwater species by Mr. Lea. The latter gentleman communicated his paper to the American Philosophical Society, where it will be found in the 'Transactions,' vol. vi.; Mr. Conrad read his paper before the Academy of Natural Sciences of Philadelphia, in Jan. and Feb. 1837. It is published in the second part of the 'Journal' of the Society, vol. vii. pp. 227-268*. Although headed "Descriptions of New Marine Shells, from Upper California, collected by Thomas Nuttall, Esq.," it also contains not only descriptions of several of Mr. Nuttall's Sandwich Island shells and *Hinnita Nuttalli*, from Fayal†, but also shells from places never visited by him, as *Lyonsia inflata*, Guayaquil, Dr. Burrough; *Vulsella Nuttalli*, from the Friendly Islands; and *Tellina linteâ*, a fossil from Mobile Point, Alabama. The work bears the appearance of undue haste; the genera are grouped together without the least regard to arrangement; a large proportion of the species are named either *Californicus* or *Nuttalli*; the difficult genera, such as *Acmaea* and *Chiton*, are not touched; the localities cannot always be depended on, as *e. g.* when *Perna Californica* is said to inhabit the *Sandwich Islands*; and the descriptions being in English would not have been entitled to claim precedence were it not that they are accompanied by tolerably recognizable figures. The characteristic names and very elegant and accurate descriptions of plants from the pen of Mr. Nuttall in the same volume, make us greatly regret that he performed his conchological work by proxy. But the confusion does not end here. Mr. Nuttall, having reserved a small part of his collections for his own use, transferred the bulk of them to Dr. Jay, accompanied by MS. names for the shells passed over by Conrad. These have been printed in Jay's Catalogue, but without descriptions, with the addition of some not in the least remembered by Mr. Nuttall. Under these names they were sent to Mr. Cuming and others, and have taken their chance of admission into the monographs‡. Meanwhile Mr. Nuttall returned to England (where he now resides on his estate, Nut Grove, Rainhill, near Liverpool), and continued to distribute the shells under MS. names; but not having access to Conrad's work, the names of that author were often lost, and others substituted in their place. So little is Conrad's paper known, that M. Deshayes redescribed several of the most characteristic species; Dr. Dunker complained that he had never been able to see it;

* Part i. of the same volume bears date 1834.

† It is generally supposed that the *Hinnites Poulsoni*, which is described and figured by Conrad in the same volume of the Journal, and is the *H. giganteus*, Gray, is assigned to Fayal. The two species have been confounded, as the locality of *H. Poulsoni* was not known.

‡ Of the species only existing in Dr. Jay's Catalogue, and which therefore have no claim to priority, I am unable to give any information. I have requested that celebrated conchologist (through Dr. Gould) to furnish the public with either figures or descriptions of them, but have not yet received a reply. From the redescription of several of them by Dr. Gould, they would appear not to be well known even by the naturalists of his own country.

and Philippi states that it is not to be found even in the Royal libraries at Berlin or Gottingen. Having fortunately obtained access to a copy of the paper, and compared it with Mr. Nuttall's own shells*, and at the same time with those brought by the officers of the Mexican war, I offer the following as the best statement that present circumstances will permit. It should be premised that Mr. Conrad, in the 'Journal' for 1849, made several emendations of his paper which have been here incorporated. The new species are described in the 'Proc. Zool. Soc.' 1856, pp. 209-229.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
1	236	18	5, 6	<i>Parapholas</i> † <i>Californica</i> , <i>Conr.</i> = <i>Pholas C.</i> , <i>Conr.</i> à pr. man.; Sow. Thes. = <i>Pholas Janellii</i> , <i>Desh. Rev.</i> 1839, p. 357; Guer. pl. 14-16; Chen. pl. 3. f. 5; Jay's Cat. No. 162.—Mus. Nutt., Cum., Brit.	Sta. Barbara.	clay rocks.
2	237	18	7	—† <i>penita</i> , <i>Conr.</i> = <i>Pholas p.</i> , <i>Conr.</i> à pr. man. = <i>Pholas concamerata</i> , <i>Desh. Rev.</i> 1839, p. 357; Guer. pl. 17; Chen. pl. 3. f. 4; Jay's Cat. 186.—Mus. Gould.	Sta. Barbara.	clay rocks.
3	236	18	2	<i>Platyodon</i> ‡ <i>cancellata</i> , <i>Conr.</i> , <i>Jay's Cat.</i> 265. —Mus. Nutt., Brit.	Sta. Barbara.	muddy marshes and soft rocks.
4	235	18	1	<i>Cryptodon</i> § <i>Nuttallii</i> , <i>Conr.</i> ?= <i>Cypricia Nuttallii</i> , quasi <i>Conr.</i> —B.M. Non <i>Mactra Nuttallii</i> , Rve. Conch. Ic. pl. 21. sp. 125.—Mus. Nutt., Brit.	Sta. Barbara.	salt marshes, bare at low w.
5	234	17	11	<i>Sphænia Californica</i> , <i>Conr.</i> = <i>Cryptomya Californica</i> , <i>Conr. Journ.</i> 1849, p. 208; Jay's Cat. 467.—Mus. Nutt.	Sta. Barbara.	salt marshes; rare.
6	248	19	8	<i>Thracia curta</i> , <i>Conr.</i> —Mus. Nutt.....	Sta. Barbara.	one fine pair.
7	247	19	5	<i>Mytilimeria</i> ¶ <i>Nuttalli</i> , <i>Conr.</i> , <i>Jay's Cat.</i> 2221.—Mus. Brit.	California.	in sponge, and thrown up attached to roots of fuci, in deep w.
8	248	19	20	<i>Lyonsia Californica</i> , <i>Conr.</i> ?= <i>L. hyalina</i> , <i>Conr.</i> This shell, which seems to have been lost, probably re- appears as <i>L. nitida</i> , Gould: v. <i>infra</i> .	Sta. Barbara.	
9	238	18	8	<i>Periploma argentaria</i> , <i>Conr.</i> = <i>P. planiuscula</i> , Sow. 1834, teste Gld. non Cum.; Jay's Cat. 330.—Mus. Cum. Gld.	San Diego.	muddy marshes of sea-coast.
10	228	17	1	<i>Pandora punctata</i> , <i>Conr.</i> —Mus. Cum., Nutt.	Sta. Barbara.	single valves.

* Mr. Nuttall's silvery locks have not lessened his interest in Natural Science. His memory is singularly clear on all matters relating to his own collections; and has been allowed to turn the scale on doubtful points, in the few instances where no MS. had remained.

† It is difficult to know what Conrad means by this genus, which is described in *Journ.* 1849, p. 214. He afterwards calls *P. acuminata*, which is clearly congeneric, *Penitella Wilsonii*; while he applies the name *Parapholas* to *Pholadidea melanura*. It is here used according to the interpretation of Woodw. (*Man. Moll.* p. 329) for the *Pholadidea* with tripartite valves, persistent cups, and large plates.

‡ *Platyodon* is described as a subgenus of *Mya*, with four testaceous valves on the ends of the tubes.

§ *Cryptodon* is described as a subgenus of *Lutraria*, with two corneous valves, which close the orifices of the tubes.

¶ *Mytilimeria*, as appears from type valves in the Brit. Mus., received from Conrad, is a subgenus of *Lyonsia* (not a synonym for it) with spiral umbos, regular rounded form, and very slight ligamental pit.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
11	231	17	8	<i>Solecortus lucidus</i> , <i>Conr.</i> = <i>S. radiatus</i> , Gld. non Linn. (teste <i>Conr.</i> 1849). = <i>Siliqua lucida</i> , <i>Conr.</i> Journ. Aug. 1849. <i>Machera lucida</i> , Jay, 238.—Mus. Nutt., Br.	Sta. Barbara.	rare.
12	232	17	9	<i>Solecortus Nuttallii</i> , <i>Conr.</i> = <i>Siliqua Nuttallii</i> , <i>Conr.</i> Aug. 1849. = <i>Solen splendens</i> , Chen. teste <i>Conr.</i> = <i>Machera maxima</i> , Gould, Jay's Cat. 239; non Wood, teste <i>Conr.</i> —Mus. Nutt.	Columbia R.	salt marshes, near Pt. Adams.
13	233	17	10	<i>Cultellus subteres</i> , <i>Conr.</i> [Subg. described.] <i>Solecortus subteres</i> , Jay, 236.—Mus. Nutt., Brit.	Sta. Barbara.	
14	233	18	3	— <i>Californianus</i> , <i>Conr.</i> <i>Solecortus Californianus</i> , Jay, 221.—Mus. Nutt., Brit.	Sta. Barbara.	muddy salt marshes: common.
15	241	18	13	<i>Psammobia Pacifica</i> , <i>Conr.</i> , Jay, 500 (Columbia R.). [<i>Sanguinolaria</i> .]—Mus. Br.	San Diego.	deepish water, sandy bottom.
16	230	17	6	<i>Sanguinolaria Nuttallii</i> , <i>Conr.</i> , Jay, 488, 489. —Mus. Nutt., Cum. = <i>Psammobia decora</i> , Hds.	San Diego.	marshes.
17	231	17	7	— <i>Californiana</i> , <i>Conr.</i> Var. A. "May prove distinct."—Mus. Nutt.	Columbia R.	muddy marshes, brackish.
18				— <i>rubro-radiata</i> , <i>Conr.</i> , Nutt. MS.—Mus. Nutt. Appears to have been overlooked. Allied to <i>Psammobia</i> .	California.	
19	239	18	11	<i>Amphidesma rubrolineata</i> , <i>Conr.</i> = <i>Semele simplex</i> , A. Ad. ? ubi.—Mus. Gld., Cuming.	San Diego.	deep water.
20	239	19	2	— <i>decisa</i> , <i>Conr.</i> = <i>A. roseum</i> , Gld. [? non Brod. & Sow.]; Jay, 443.—Mus. Nutt., Brit., Cum.	San Diego.	deep water.
21	234	17	12	<i>Cumingia Californica</i> , <i>Conr.</i> , Jay, 457.—Mus. Cum., Brit.	Sta. Barbara.	rare.
22	258			<i>Tellina alta</i> , <i>Conr.</i> , Jay, 520 ? = ? <i>Scrobicularia biangulata</i> , Cpr.*—Mus. Nutt. P. Z. S. 1855, p. 230.	Sta. Barbara.	
23				— <i>edentula</i> , Brod. & Sow.—Mus. Nutt., Cum. &c.	Columbia R.	"Grows very large, and is eaten by the Chinooks."—Nutt.
24	258			— <i>nasuta</i> , <i>Conr.</i> , Jay, 592. Columbia River. Jay's habitat is likely to be more correct than Conrad's, as this is one of the Okotsk species.	San Diego.	
25	257			<i>Tellina secta</i> , <i>Conr.</i> † = <i>T. ligamentina</i> , Desh. in Guer. Mag. 1843, pl. 81; Jay, 633.—Mus. Nutt.	San Diego.	muddy marshes.
26				<i>Strigilla carnaria</i> , Linn.‡ 27 254 19 21 <i>Donax Californica</i> , <i>Conr.</i> , Jay, 699.—Mus. Nutt., Brit., Cum. &c. = <i>Donax obesa</i> , Phil. Zeit. f. Mal. 1851, p. 75. no. 2. (non Desh.)	California. Sta. Barbara.	not uncommon. sand.

* The *T. alta* is lost in this country. There is no figure in Conrad. In genera that are loosely defined, there is a danger of species reappearing under two heads, as in the case of *Psammobia decora*, Hds., which however was figured. The biangulate character assigned to *T. alta* makes the ? *Scrobicularia* suspected.

† There is a *Tellina Californica*, as of *Conr.*, in the Brit. Mus., which is probably identical with one of these published species.

‡ This species has been overlooked in the Monograph, P. Z. S. Vide Br. Mus. Maz. Cat. in loco.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
27	254	19	21	<i>Donax Californica</i> (<i>continued</i>). = <i>D. obesus</i> , Gld., quasi nov. sp. Non <i>D. Californicus</i> , Desh. in Mus. Cum. = <i>D. Conradi</i> , var. jun.		
28	240	18	12	<i>Mastra Californica</i> , <i>Conr.</i> —Mus. Gould ...	Sta. Barbara.	muddy marshes bare at low water: rare.
29	240			— planulata, <i>Conr.</i> (Appears to be lost.)	Sta. Barbara.	
30	256	20	9	<i>Petricola Californica</i> , <i>Conr. Journ.</i> Aug. 1849; Desh. <i>Cat. Ven.</i> p. 208. no. 3. <i>Saxicava C.</i> , <i>Conr.</i> à prim. man.; Jay's Cat. 460.—Mus. Gould, Cum. = <i>Petricola arcuata</i> , Desh. Rev. Cuv. Dec. 1839, p. 358.	Sta. Barbara & San Diego.	
306	255	20	8	— carditoides, <i>Conr. Journ.</i> Aug. 1849. <i>Saxicava c.</i> , <i>Conr.</i> à pr. man.—Mus. Nutt., Gld. Non <i>Venerupis carditoides</i> , Lam. An. s. Vert. vol. vi. p. 164. no. 7; Desh. B.M. Cat. Ven. p. 192. no. 7. = <i>P. Californica</i> , var. teste Nutt. Comp. <i>Petricola cylindracea</i> , Desh. Rev. Cuv. 1839, p. 358; B.M. Cat. Ven. p. 208. no. 5. Comp. <i>Petricola gibba</i> , Mid. Mal. Ross. p. 57, pl. 18. f. 5-7.	Sta. Barbara.	one valve.
31	251	19	19	<i>Venus lamellifera</i> , <i>Conr.</i> [Rupellaria.] = <i>Venerupis Cordieri</i> , var. β, Desh. Cat. • Ven. p. 191. no. 1. = <i>Petricola Cordieri</i> , Desh. Rev. Cuv. 1839, p. 358.—Mus. Cum., Nutt., Gld.	San Diego.	one valve.
32				? <i>Tapes tumida</i> , <i>Conr.</i> <i>Mysia tumida</i> , <i>Conr.</i> teste Nutt. MS.— Mus. Nutt.	Sta. Barbara.	one sp.
33	250	19	14	<i>Venus staminea</i> , <i>Conr.</i> <i>Tapes straminea</i> , Sow. Thes. Conch. p. 699, pl. 151. f. 151. = <i>Venus dispar</i> , Gld. MS.—Mus. Brit., Nutt., Cum.	Sta. Barbara & San Diego.	
34	249	19	12	<i>Saxidomus Nuttalli</i> , <i>Conr.</i> [Genus de- scribed.] Desh. <i>Cat. Ven.</i> p. 188. no. 4. = <i>Venerupis gigantea</i> , Desh. Rev. Cuv. 1839, p. 359, teste Jay. = <i>Pullastra gigantea</i> , Catl. Conch. Nom. p. 41. = <i>Saxidomus giganteus</i> , Desh. Cat. Ven. p. 187. no. 2. Comp. <i>Saxidomus Petiti</i> , Desh. Cat. Ven. p. 189. no. 7; Jay, 481.—Mus. Nutt., Cum. [The species described from the Californian <i>Saxidomi</i> are unsatisfac- torily made out; depending on dif- ferences in sculpture which appear variable.]	“California and San Diego.”	“burrowing into soft claystone.”
35	253	19	17	<i>Trigonella crassatelloides</i> , <i>Conr.</i> Subgenus indicated: described Journ. 1849, p. 213. <i>Trigona crassatelloides</i> , Desh. Cat. Ven. p. 46. no. 1. = <i>Cytherea solidissima</i> , Phil. Z. f. M. 1851, p. 74. no. 100. <i>Cytherea crassatelloides</i> , Jay, 847. Mus. Nutt., Gld., Brit., Cum.	San Diego and Sta. Barbara.	1 foot deep in the sand, common.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
36	252			<i>Cytherea callosa</i> , <i>Conr.</i> [Dosinia.] Non <i>Chione callosa</i> , Desh. Cat. Ven. p. 135. no. 48. Non <i>Venus Stuchburyi</i> , Jay's Cat. 1080. —Mus. Nutt.	Sta. Barbara.	common: broken by gulls.
37	250	19	15	<i>Venus Nuttalli</i> , <i>Conr.</i> , Jay, 1037.—Mus. Brit., Nutt., Cum. <i>Chione Nuttalli</i> , Desh. Cat. Ven. p. 135. no. 47. + <i>Chione callosa</i> , Desh. no. 48, pars. — <i>Californiana</i> , <i>Conr.</i> [quasi Sow.] = <i>Venus Californiensis</i> , Brod. P.Z.S. 1838. <i>Chione Californiensis</i> , Desh. no. 44. = <i>Venus leucodon</i> , Sow. teste Desh.—Mus. Brit., Cum., Nutt.	Sta. Barbara & San Diego.	
38	251	19	16	— <i>simillima</i> , Sow., Desh. Cat. Ven. p. 133. no. 43.—Mus. Nutt. — (<i>Chione</i>) <i>excavata</i> , <i>Cpr.</i> —Mus. Nutt.	San Diego.	muddy marshes.
39				4 <i>Cypricardia Californica</i> , <i>Conr.*</i> = <i>C. Duperryi</i> , Desh. Rev. Cuv. 1839, p. 359. teste Gld.—Mus. Nutt.	San Diego and Sta. Barbara.	soft clay rocks, bare at low water.
40				42 <i>Chama exogyra</i> , <i>Conr.</i> , Jay 2110.—Mus. Nutt., Cum., Brit., Gld.	Sta. Barbara & San Diego.	on rocks.
41	236	18	4	— ? <i>frondosa</i> , var. <i>Mexicana</i> . — Mus. Nutt.	Sta. Barbara.	one young sp.
42	256			— <i>pellucida</i>	Sta. Barbara.	one very fine sp.
43				3 <i>Cardium Nuttalli</i> , <i>Conr.</i> , Jay, 1177.—Mus. Nutt., Brit.	Sp. San Juan di Fuca.	muddy marshes.
44	229	17	3	— <i>Californianum</i> , <i>Conr.</i> = <i>C. Nuttalli</i> , var. teste Midd. Mus.—? Non <i>C. Californiense</i> , Desh. teste Midd.	Sta. Barbara.	single valves, rare.
45	229	17	4	— <i>quadrigenarium</i> , <i>Conr.</i> , Jay, 1197–98. (Not known in England.) Comp. <i>C. xanthocheilum</i> = <i>luteolabrum</i> , Gld.	Sta. Barbara.	rare.
46	230	17	5	— <i>substriatum</i> , <i>Conr.</i> , Jay, 1222.—Mus. Nutt.	San Diego.	muddy marshes, bare at low water.
47	228	17	2	11 <i>Lucina bella</i> , <i>Conr.</i> = <i>L. pecten</i> , var. teste Jay [?] Cat. 682.	San Diego.	muddy marshes, bare at l. w.: common.
48	254	19	11	— <i>Californica</i> , <i>Conr.</i> , Jay, 662.....	San Diego.	ditto: rare.
49	255	20	1	2 — <i>Nuttalli</i> , <i>Conr.</i> , Jay, 680.—Mus. Nutt.	San Diego.	muddy marshes, &c.
50	255	20	2	<i>Diplodonta orbella</i> , Gld. ? = <i>D. semiaspera</i> , var. — Mus. Nutt., Gld.	Sta. Barbara.	muddy æstuary, 1 sp.
51				<i>Anodon Nuttalliana</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. pl. 20. f. 62; Jay, 2059. —Mus. Nutt.	Wahlamat R., Oregon.	
52				— <i>Oregonensis</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. pl. 21. f. 67; Jay, 2061.	Wahlamat R., Oregon.	
53				— <i>Wahlamatensis</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. pl. 20. f. 64; Jay, 2084.	Wahlamat R., Oregon.	
54	242			<i>Modiola capax</i> , <i>Conr.</i> , Jay, 2153.—Mus. Cum., Gld., Brit.	Sta. Barbara.	marshes and muddy shores.
55	243	19	1	— <i>recta</i> , <i>Conr.</i> —Mus. Gld.....	Sta. Barbara.	rare.
56	243	19	1	<i>Mytilus edulis</i> , <i>Linn.</i> , (<i>a</i>) <i>normalis</i> , (<i>b</i>) <i>pellucidus</i> , (<i>c</i>) <i>latissimus</i> .—Mus. Nutt.	U. California.	
57				15 <i>Mytilus Californianus</i> , <i>Conr.</i> , Jay, 2185.—Mus. Gld.	Sta. Barbara, Monterey, San Diego.	on rocks.

* Mr. Hanley thinks that this shell may be the *C. Guiniaca* of Lamarck. This is extremely unlikely, as there is no evidence that Lam. was acquainted with a single strictly Californian species.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
59	241	18	14	<i>Mytilus bifurcatus</i> , <i>Conr.</i> , Jay, 2184..... No knowledge of the locality of this shell exists, except the statement of Conrad, which alone is not binding, and its appearance among the Mexican War shells, the collectors of which brought home nothing from the Sandwich Islands.	"Sandwich Is."	"on rocks, bare at low water."— <i>Conr.</i>
60	246			<i>Perna costellata</i> , <i>Conr.</i> , Jay, 2267.—Mus. Nutt. "Sta. Barbara." Conrad, who rightly assigns his <i>P. Californica</i> to the Sandwich Islands, appears to have made an error in assigning the Californian species to the same place.	"Sandwich Is."	"under stones." <i>Conr.</i>
61	238	18	9	<i>Pecten latiauratus</i> , <i>Conr.</i> , Jay, 2364.—Mus. Nutt., Cum.	San Diego and Sta. Barbara.	below efflux of tide.
61b	238	18	10	— <i>Monotimeris</i> , <i>Conr.</i> = <i>P. latiauratus</i> , var. teste Nutt.; Jay, 2374.	San Diego and Sta. Barbara.	below efflux of tide. Young attached to Fuci by byssus.
62				<i>Ostrea conchaphila</i> , <i>B.M. Maz. Cat.</i> no. 214. —Mus. Nutt. &c.	Oreg., S. Diego.	
63				<i>Bulla nebulosa</i> , <i>Gld.</i> —Mus. Gould, Cuming, Nutt., Brit.	Sta. Barbara.	
64				<i>Helix Californiensis</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. p. 99. pl. 23. f. 79, 84. + <i>H. Nickliniana</i> , <i>Lea</i> , teste Jay, 3452.	Columbia River.	
65				— <i>Columbiana</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. p. 89. pl. 23. f. 75; Jay, 3552.	Columbia River, Ft. Vancouver, Nootka Sd.	
66				— <i>Nuttalliana</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. p. 89. pl. 23. f. 74. = <i>H. fidelis</i> , Gray, P.Z.S. 1834, p. 67; Jay, 3668.	Ft. Vancouver, Nootka Sd. Oregon.	
67				— <i>Oregonensis</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. p. 89. pl. 23. f. 85; Jay, 4095.	Oregon.	
68				— <i>Vancouverensis</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. p. 87. pl. 23. f. 72; Jay, 4524.—Mus. Nutt.	Oregon.	
69				— <i>Townsendiana</i> , <i>Lea</i> , Trans. Am. Phil. Soc. vol. vi. p. 99. pl. 23. f. 80.—Mus. Gld., Cum.	Oregon.	
70				<i>Succinea Oregonensis</i> , <i>Lea</i> , Trans. &c. 1841, p. 32; Jay, 5734.	Oregon.	
71				<i>Limnæa Nuttalliana</i> , <i>Lea</i> , Trans. &c., 1841, p. 9; Jay, 6316.	Oregon.	
72				<i>Physa</i> , <i>sp. ind.</i> —Mus. Nutt.	Oregon.	1 sp.
73				<i>Planorbis subrenatus</i> , <i>Cpr.</i> —Mus. Nutt....	Oregon.	
74				<i>Chiton Nuttalli</i> , <i>Cpr.*</i> —Mus. Nutt., Cum., ? Br.	Monterey.	
75				— <i>acutus</i> , <i>Cpr.*</i> —Mus. Nutt.	Sta. Barbara.	
76				— <i>ornatus</i> , <i>Nutt. MS.</i> —Mus. Nutt. ? = <i>Ch. armatus</i> , Nutt. in Jay's Cat. 2678 : = <i>Ch. muscosus</i> , Gld.	San Diego.	
77				<i>Acmæa patina</i> , <i>Esch.</i> —Mus. Nutt., Cum., Br., Gld. &c. = <i>Patella fenestrata</i> , Nutt. in Jay's Cat. 2815. + <i>P. mamillata</i> , Nutt. in Jay's Cat. 2839.	U. California.	

* In the Brit. Mus. appears an undescribed "*Chiton consimilis*, Nutt." It is probably one of these species, which were described from Mr. Nuttall's own specimens. There is also a *Chiton Californicus*, Nuttall, MS., in Rve. Conch. Ic. pl. 16. fig. 89.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
77				<i>Acmaea patina</i> (<i>continued</i>). + <i>P. tessellata</i> , Nutt. in Jay's Cat. 2885. ?+ <i>P. diaphana</i> , Nutt. in Jay's Cat. 2813 (? non <i>P. diaphana</i> , Rve.*).		
78				— <i>pelta</i> , Esch.—Mus. Nutt., Cum. Brit., Gld. &c. = <i>Patella leucophæa</i> , Nutt. MS.; Rve. Conch. Ic. pl. 34. sp. 101; non <i>P.</i> <i>leucophæa</i> , Gmel., Jay's Cat. 2827. ?+ <i>P. monticola</i> , Nutt. MS.= <i>P. monti-</i> <i>color</i> , Jay's Cat. 2844. + <i>P. strigillata</i> , Nutt. MS.; Jay, 2881.	U. California.	
79				— <i>persona</i> , Esch.—Mus. Nutt., Cum., Br., Gld. &c. = <i>Patella Oregona</i> , Nutt. MS.= <i>P. Ore-</i> <i>gana</i> , Jay's Cat. 2852. + <i>P. umbonata</i> , Nutt. MS.; Jay, 2887. + <i>P. pileata</i> , Nutt. MS.; Jay, 2861.	Oregon.	
80				— <i>scabra</i> , Nutt. MS.—Mus. Nutt., Cum., Brit., Gld. &c. <i>Lottia scabra</i> , Jay's Cat. 2907. <i>Patella scabra</i> , Rve. Conch. Ic. pl. 37. f. 119 a, b. Non <i>P. L. scabra</i> , Gld. Exp. Shells, p. 10.	San Diego, &c.	
81				— <i>spectrum</i> , Nutt. MS.—Mus. Nutt., Cum., Brit., Gld. &c. <i>Patella spectrum</i> , Jay, 2877; Rve. Conch. Ic. pl. 29. f. 76 a, b. = <i>P. L. scabra</i> , Gld., non Nutt.†	California.	
82				<i>Scurria mitra</i> , Esch. & Less.—Mus. Nutt., Cum., Brit. Gld., &c. = <i>Patella scurra</i> , Less. Voy. Coq. 1830, p. 421. no. 198. = <i>Acmaeamitra</i> + <i>mammillata</i> [non Nutt.] + <i>marmorea</i> , Esch. =? <i>Lottia pallida</i> , Gray, Z. B. V. p. 147. pl. 39. f. 1.	Monterey.	common.
83				<i>Fissurella ornata</i> , Nutt. MS.—Mus. Nutt., Brit. Jay, 3003 (St. Helena, err.)	U. California.	
84				<i>Glyphis aspera</i> , Esch. = <i>Fissurella densicathrata</i> , Rve. teste Cum.—Mus. Nutt., Cum. = <i>F. exarata</i> , Nutt. MS. = <i>F. cratitia</i> , Gld.	Sta. Barbara.	
85				<i>Lucapina crenulata</i> , Sow. Conch. Ill. no. 19. f. 31, 38; Tank. Cat. App. p. vi; Rve. Conch. Ic. pl. 3. sp. 18.—Mus. Jay, Nutt., Cum.	San Diego.	
86				<i>Haliotis Californiensis</i> , Swains. Zool. Ill. vol. ii. pl. 80.	San Diego.	
87				— <i>Cracherodii</i> , Leach, Rve. Conch. Ic. pl. 7. f. 23.—Mus. Jay, Nutt. = <i>H. glaber</i> , Schub. and Wagn. pl. 224. f. 3086-7.	San Diego.	
88				— <i>splendens</i> , Rve. Conch. Ic. pl. 3. f. 9...	San Diego.	
89				<i>Pomaulax undosus</i> , Wood. = <i>Trochus Californianus</i> , Nutt. MS.—Mus. Nutt., Cum., Brit.	Monterey.	

* For other references to this species, *v. supra*, p. 173.

† Of *Patella lævigata*, Nutt. MS. in Jay's Cat. 2825, Mr. Nuttall can give no information. It is probably one of the many forms of *A. patina*. The above arrangement is satisfactory to Mr. Nuttall, after a re-examination of his shells in connexion with the collections of Dr. Gould.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
90				<i>Trochiscus Norrisii</i> , Sow.....	Monterey.	
				= <i>Turbo rotelliformis</i> , Jay.—Mus. Nutt., Brit., Cum.		
91				<i>Trochus filiosus</i> , Wood, Suppl. pl. 5. f. 23 (malè).	Monterey.	
				= <i>T. castaneus</i> , Nutt. MS.; Forbes, P.Z.S. 1850.		
				= <i>T. ligatus</i> , Gould, Exp. Sh. p. 55.		
				Var. = <i>T. doliaris</i> , Gld. MS.? non Chemn.		
				? Var. = <i>T. virgineus</i> , Gld. MS.? non Chemn.		
				= <i>Ziziphinus annulatus</i> , A. Ad. ? non Mart. in Lam. An. s. Vert. ix. 144. no. 51.		
				—Mus. Nutt., Gld., Cum., Brit.		
92				<i>Omphalius ater</i> , Less.—Mus. Nutt., Cum., Brit. &c.	California.	
				? Var. = <i>Trochus gallina</i> , Forbes.		
93				— <i>fuscescens</i> , Phil.	Sta. Barbara.	
				= <i>Trochus luridus</i> , Nutt. MS.—Mus. Nutt., Brit., Cum.		
94				— <i>marginatus</i> , Nutt. MS., in P. Z. S. 1851, p. 181. no. 11*.—Mus. Nutt., Brit., Cum.	U. California.	
95				— <i>aureotinctus</i> , Forbes	U. California.	
				? = <i>Trochus pallidus</i> , Nutt. MS.—Mus. Nutt., Brit., Cum., Gld.		
				= <i>T. cateniferus</i> , Potiez, teste Gld.		
96				<i>Crepidula rugosa</i> , Nutt. MS.; Jay, 3036.	U. California.	
				—Mus. Nutt., Cum.		
				= <i>C. onyx</i> , var. teste Jay [?].		
97				—, <i>sp. ind.</i> —Mus. Nutt., Jay.	U. California.	
				= <i>Crepidula navicelloides</i> , Nutt. MS.		
				? Jun. = <i>Cr. minuta</i> , Mid. Mal. Ros. p. 101. pl. 11. f. 6, 7.		
				? Var. = <i>Cr. nummaria</i> , Gld., Exp. Sh. p. 15; Jay, 3035.—Mus. Cum., Gld.		
98				— <i>explanata</i> , Gld.	U. California.	
				= <i>Crepidula exuvata</i> , Nutt. in Jay's Cat. 3027.		
				= <i>Cr. perforans</i> , Val.—Mus. Jay, Cum., Gld.		
				? = <i>Cr. navicelloides</i> , var.		
99				— <i>aculeata</i> , var.	Sta. Barbara.	common.
				= <i>Crepidula Californica</i> , Nutt. MS.—Mus. Nutt., Brit., Warrington, &c.		
100				<i>Crucibulum spinosum</i> , Sow.—Mus. Nutt....	Monterey.	very rare.
101				<i>Hipponyx Grayanus</i> , Mke.	California.	very rare.
				= <i>H. radiatus</i> , Gray.—Mus. Nutt.		
102				<i>Spirogyphus</i> , <i>sp. ind.</i> —Mus. Nutt.	Sta. Barbara.	1 young sp. On <i>Crep. aculeata</i> .
103				<i>Aletes squamigerus</i> , Cpr.—Mus. Nutt., Gld.	Sta. Barbara.	
104				<i>Petalocochus macrophragma</i> , Cpr.—Mus. Nutt.	San Diego.	on <i>Euraphia Hembeli</i> .
105				<i>Cerithidea sacrata</i> , Gld.	Monterey, Sta. Barbara, &c.	in æstuaries.
				= <i>Pirena Californica</i> , Nutt. MS.—Mus. Nutt., Brit., Gld.		
106				<i>Litorina planaxis</i> , Phil.	California.	
				= <i>Littorina tenebrata</i> , Gld.—Mus. Nutt., Brit., Cum.		

* Mr. Adams in his Monograph of the family has omitted to describe this species. It may, however, be the *Turbo marginatus* of Rve. Conch. Ic. pl. 12. f. 57.

No.	Page.	Plate.	Fig.	Name.	Locality.	Station.
107				<i>Natica</i> ?maroccana, var. <i>Californica</i> *.—Mus. Nutt., Brit.	U. California.	
108				<i>Ranella triquetra</i> , Rve. Conch. Ic. pl. 7. f. 41. —Mus. Nutt., Cum. Extremely like a young <i>Vitularia salebrosa</i> . Also resembles <i>R. muriciformis</i> .	San Diego.	
109				<i>Mitra maura</i> , teste Nutt. MS.—Mus. Nutt.	U. California.	
110				<i>Olivella glandinaria</i> , Nutt.—Mus. Nutt.	California.	
111				" <i>Buccinum Poulsoni</i> ," Nutt. MS.—Mus. Nutt. N.B. The <i>Purpura dumosa</i> , Conr. p. 267. pl. 20. f. 20 = <i>porphyrostoma</i> , Rve. teste Jay, is not from California, as given by Jay, Cat. 8781, (Conrad being silent), but from Wahoo, Sandw. Is. teste Nutt.	U. California.	
112	267			<i>Purpura macrostoma</i> , Conr. = <i>P. aperta</i> , Blainv. var., teste Jay's Cat. 8942; —Museo suo.	Sta. Barbara.	
113	266	20	25	— harpa, Conr.—Mus. Nutt. Jay, 8980...	Sta. Barbara.	
114				— emarginata, Desh. = <i>P. Conradi</i> , Nutt. MS. teste Jay's Cat. 8972.—Mus. Brit., Cum.	California.	
115	264	20	17	<i>Monoceros engonatum</i> , Conr. = <i>M. unicarinatum</i> , Rve. Conch. Ic. sp. 1; non pl. 1. f. 1. nec syn. plur.: non Sow. nec Desh. Comp. <i>Purpura spirata</i> , Blainv. Nouv. Ann. Mus. i. 1832, pl. 12. f. 8. p. 252. no. 105; Kien. Ic. Conch. p. 121. no. 76. pl. 38. f. 90. = <i>M. unicarinatum</i> , pars, Desh. in Lam. An. s. Vert. x. p. 124. no. 10, syn. Angl. excl.—Mus. Nutt., Brit., Jay, 9067.	Sta. Barbara.	
116	264			— brevidens, Conr. = <i>M. unicarinatum</i> , Sow. Conch. Ill. no. 14. p. 4. f. 5, non Rve. nec Desh. = <i>Monoceros</i> , pl. 1. f. 2 (non sp. 2), Rve. Conch. Ic. Non <i>M. brevidentatum</i> , Gray = <i>M. maculatum</i> , Gray = <i>Purpura cornigera</i> , Blainv. Jay, 9045.—Mus. Nutt., Cum.	Sta. Barbara.	
117	265	20	18	— lapilloides, Nutt. = <i>M. punctulatum</i> , Sow. Conch. Ill. p. 4. no. 13. f. 3. = <i>M. punctatum</i> , Gray, Z. B. V. 1839, p. 124:—Rve. Conch. Ic. sp. 2. pl. 1. f. 1 (non f. 2).—Mus. Jay 9065, Nutt., Brit., Cum. Possibly these three species are varieties of the same.	Sta. Barbara.	
118	264	20	22	<i>Murex</i> (<i>Cerostoma</i>) Nuttalli, Conr. [s. g. described]. Jay, 8298.—Mus. Nutt. ? = <i>Murex monoceros</i> , Sow. jun. P. Z. S. 1840, p. 143; Rve. pl. 2. f. 7.	Sta. Barbara.	

40. In the "Voyage autour du Monde, pendant les années 1836–37, sur la Bonite: Zoologie, par MM. Eydoux et Souleyet," published without date at Paris between the years 1847 and 1851, are to be found beautiful illustrations of Cephalopoda and Pteropoda, and various plates of shells without

* Mr. Reeve figures a "*Natica plicatula*, Nutt." pl. 23. f. 107, without locality. It closely resembles No. 107, but has a straight umbilicus.

descriptions. The original types of most of these are deposited separately in the British Museum; of which the Trustees published a Catalogue in January 1855. The following are all that have been observed which enter the West N. American province; having been collected probably on the W. coast of S. America, as far north as Guayaquil, whence the vessel sailed for the Sandwich Islands.

Plate. Fig.

35 1-3. *Natica glauca*, Humb. = *N. patula*, Sow.

35 4, 5. *Natica Chemnitzii*, Récl. (non *N. Chemnitzii*, Pfr. = *N. maroccana*, Chemn. var.)

36 1-5. } *Modulus trochiformis*, Eyd. & Soul. = *M. disculus*, Phil.

37 25-31. }
39 17-19. } *Purpura undata*, Lam. var. This is not the West Indian shell, which is probably the true *P. undata*. It is doubtful whether it is a variety of the Pacific species, *P. biserialis*, Blainv.

In the British Museum Collection there also appear—

Tablet 195. *Scurria mitra*, Less. & Esch.

„ 248. *Cytherea ? petichialis*, Touranne.

„ 395. “*Purpura hæmastoma*,” punctured like the *P. biserialis*, and probably identical with it. (? = *P. undata*, figured as above.)

41. In the year 1836, the *Venus* sailed from France under the command of M. du Petit Thouars, on a voyage of discovery round the world. The second in command was M. Chiron, who, aided by his friend M. de La Perouse, collected a large number of shells. The ship visited Callao, Payta, the Galapagos, the Bay of Magdalena, Mazatlan, San Blas, and various stations northwards as far as Kamtschatka.

After the return of the expedition in 1839, M. Chiron furnished M. Deshayes with a large number of specimens, who makes this characteristic announcement. “MM. les officiers de marine, qui ont le désir d'être utiles à l'histoire naturelle, reconnaîtront qu'en mettant les riches matériaux qu'ils rapportent entre les mains de naturalistes vraiment travailleurs, ils en font profiter de suite la science; ce qui n'a jamais lieu lorsqu'ils les donnent, sans discernement et en totalité, à des établissemens publics.” In this country we should desire to reverse the recommendation; and consider that collectors were showing their discernment by giving the first choice of their materials, *en totalité*, to public museums where they can be consulted by students.

In the “*Revue Zoologique par la Société Cuvierienne*, Paris, Decembre 1839,” pp. 356-361, appear Latin diagnoses of 30 “*Nouvelles Espèces de Mollusques, provenant des côtes de la Californie, du Mexique, du Kamtschatka, et de la Nouvelle Zélande, décrites par M. Deshayes.*” As several of the species figured by Conrad are redescribed, it is to be presumed that he wrote in ignorance of his labours. The following are the shells belonging to the West N. American faunas, with the habitats when recorded.

P. 357. *Chironia Laperousii*. [Monterey, Hartweg.] Mag. Zool. 1840, pl. 12.

Pholas Janellii, California. = *P. Californica*, Conr. M. Z. pl. 14-16.

Pholas concamerata, California. = *P. penita*, Conr. M. Z. pl. 17.

P. 358. *Arca trapezia*, “Semblas au Mexique.” ? San Blas. M. Z.

pl. 21. Probably a deformed *A. tuberculosa*.

P. 358. *Cytherea æquilatera*, California. = *Trigona argentina*, Sow. M. Z. pl. 22.

Saxicava pholadis, Lam. An. s. Vert. iv. 152. no. 3. Kamtschatka.

Saxicava legumen, California. M. Z. pl. 29. Probably the long

form of the common species: P. 360. *Cardium Californiense*, California. M. Z. pl. 47. = *C. Nuttalli*, Conr.: not *C. Californianum*, Conr.

P. 358. *Petricola Cordieri*, California. = *Venus lamellifera*, Conr. M. Z. pl. 18.

Petricola arcuata, California. M. Z. pl. 19.

Petricola cylindracea, California. (Probably *P. arcuata*, var.) M. Z. pl. 20.

P. 359. *Venerupis gigantea*, California. = *Saxidomus Nuttalli*, Conr.

Venerupis Petiti, California. = *Tapes diversa*, Sow. jun.

Anomia macrochisma, Kamtschatka. M. Z. pl. 34. = *Placunanomia m.*, Gray.

Cypricardia Duperreyi, California. M. Z. pl. 27.

Modiola cultellus, Kamtschatka.

P. 360. *Cardium Laperousii*, California*. M. Z. pl. 48.

Siphonaria scutellum, "Ile Chatham." ? Galapagos.

Purpura Freycinetii, Kamtschatka. M. Z. pl. 26. Much more like *P. lapillus* than Midden-dorff's figures.

Murex macropterus.

Helix Dupetithouarsi, Monterey. M. Z. pl. 30, as ".....rsii."

P. 361. *Velutina Mulleri*, Kamtschatka. = *Turbo digitatus*, Acapulco.

= *Uvanilla unguis*, Wood. M. Z. pl. 36.

Natica Recluziana, California. M. Z. pl. 37.

Natica ianthostoma, Kamtschatka.

Natica sanguinolenta.

To the above must probably be added *Purpura emarginata*, p. 360, M. Z. pl. 25, described by Deshayes as from New Zealand, but quoted in Jay's Cat. no. 8972, = *P. Conradi*, Nutt. MS., from California; and from the same locality in Mus. Cuming, on the authority of Mr. Hartweg. Many of these shells were figured in the following year in Guérin's Magasin de Zoologie, between plates 14 and 48, of which references are given above. In the same works are described, *Lucina cristata*, Recl. Rev. Cuv. 1842, p. 270, Guér. Mag. pl. 60, found "sur le banc de Campêche" by M. J. Cosmao, Commander of the Naval Station of Mexico, = *Tellina Burneti*, Brod. & Sow.: and *Lucina corrugata*, Desh., Guér. Mag. pl. 82, as from California, which Mr. Cuming found himself at Singapore.

The official description of the shells of the Venus, however, was intrusted to M. Valenciennes, under whose auspices was published "Voyage autour du Monde sur la Vénus, pendant les années 1836-39, par M. du Petit Thouars. Paris, 1846." Of this work plates only have been seen, of which the following are species connected with the West N. American coast.

Plate. Fig.

- | | | |
|----|--------------|--|
| 1 | 2. | <i>Helix vineta</i> , Val. (California, Rve.) |
| 24 | 4, 4a. | <i>Pholas rostrata</i> , Val. Almost certainly the young of one of the following species. |
| 24 | 1, 1a, b. | <i>Penitella Conradi</i> , Val. (<i>Pholadidea</i> , with long, inflated cup, without divisions.) |
| 24 | 2. | <i>Penitella xilophaga</i> , Val. (<i>Pholadidea</i> , with long, narrow cup.) |
| 24 | 3, 3a, b, c. | <i>Penitella tubigera</i> , Val. Probably a variety of the last; the tube being simply the lining of the old cavity, as in <i>P. calva</i> . |
| 24 | 7a, b. | <i>Bornia laticola</i> , Val. (Closely approaches <i>Chironia Laperousii</i> , Desh.) |
| 24 | 8, 8a. | <i>Saxicava clava</i> , Val. (Probably <i>S. legumen</i> , Desh.) |
| 16 | 2, 2a. | <i>Venus perdis</i> , Val. ? = <i>Chione neglecta</i> , Sow., represented without pallial sinus. |
| 16 | 3, 3a. | <i>Venus pectunculoides</i> , Val. = <i>Tapes histrionica</i> , Sow. |
| 2 | 2, 2a. | <i>Trochus amictus</i> , Val. = <i>Uvanilla unguis</i> , Mawc. = <i>Turbo digitatus</i> , Desh. |

* Described from a single shell which appears worn. It has much the aspect of a *Tellina*, with concentric ridges and no internal crenations; but is figured without pallial sinus.

Plate.	Fig.	
2	3, 3a-c.	<i>Trochus brevispinosus</i> , Val. = <i>Uvanilla olivacea</i> , Mawe.
3	1, 1a-c.	<i>Trochus balænarum</i> , Val. ? = <i>Pomaulax undosus</i> , Mawe, var. Vide B. M. Maz. Cat. p. 230, note.
14	1.	<i>Calyptrea rugosa</i> (? <i>cujus</i>). = <i>Crucibulum imbricatum</i> , Sow.
14	2.	<i>Calyptrea tubifera</i> , Less. = <i>Cr. spinosum</i> , Sow.
15	2.	<i>Calyptrea gemmacea</i> , Val. Shell as figured, not recognized: it may be a worn and stunted <i>Cr. imbricatum</i> .
15	3.	<i>Calyptrea amygdalus</i> , Val. = <i>Crepidula onyx</i> , Sow.
24	9, 9a, b.	<i>Calyptrea perforans</i> , Val. = <i>Crepidula explanata</i> , Gould. (The prior name of Val. must be abandoned, as representing an untruth. The form of the shell is due to its inhabiting the burrows of Lithophagi, &c.)
11	1, 1a, 1a, bis.	<i>Vermetus centiquadrus</i> , Val. (Subg. <i>Aletes</i> .)
11	3, 3a.	<i>Vermetus Peronii</i> , on <i>Strombus galea</i> . A variety of <i>V. centiquadrus</i> .
11	2.	<i>Vermetus margaritarum</i> , Val.
5	1a, b.	<i>Fusus Petit-thouarsii</i> . = <i>F. Dupetit-Thouarsii</i> , Kien.
6	1, 1a-c.	<i>Buccinum Janelii</i> , Val. = <i>Pisania sanguinolenta</i> , Ducl.
6	2, 2a-c.	<i>Buccinum mutabile</i> , Val. = <i>Pisania insignis</i> , Rve.
6	2e, f.	<i>Buccinum mutabile</i> , jun. = <i>Pisania gemmata</i> , Rve.
6	2a, β.	<i>Buccinum mutabile</i> , operculum. (Extremely incorrectly drawn.)
8	4, 4a.	<i>Purpura saxicola</i> , Val. Resembles <i>P. lapillus</i> and <i>Freycinettii</i> .
8	3, 3a.	<i>Purpura hæmatura</i> , Val. ? = <i>P. biserialis</i> , Blainv. var.
9	3, 3a-c.	<i>Purpura Grayii</i> , Kien. = <i>Monoceros grande</i> , Gray.

It will be observed that the author has, in several instances, not only overlooked the writings of English naturalists, but even disregarded the descriptions by Deshayes of the shells of this very expedition.

42. During the period that Mr. Cuming was absent on his Philippine expedition, explorations of great value were being made by a gentleman, whose few published writings only show how much science has lost by his early death. In the year 1836, the 'Sulphur,' under Lieut. Com. Kellett, visited Callao and Payta in Peru, and explored the coast from the Bay of Guayaquil to Panama. Here Commander (now Capt. Sir E.) Belcher took the first place, a gentleman whose conchological labours during the voyage of the 'Blossom' have already been recorded. Mr. Hinds, the surgeon of the expedition, not only showed the greatest industry in dredging and otherwise collecting specimens, but made the products of his labours tenfold more valuable by the accurate notes which he took of their localities and stations, guided by a comprehensive view of the subjects which it was his endeavour to illustrate. The west coast of Central America and Mexico was searched as far as San Blas, and afterwards explorations were made from Acapulco to Cerro Azul. On the return of Messrs. Hinds and Cuming from their respective expeditions, they compared their collections and notes together. Here were abundant materials for geographical and stational lists of the very greatest value; but, most unfortunately, the usual plan was followed of only publishing the new species. This was done by Mr. Hinds in several most accurate and valuable papers communicated to the Zool. Soc. and to the Annals of Nat. Hist.; and, in a collective form, in the "Zoology of the Voyage of H.M.S. Sulphur, commanded by Capt. Sir E. Belcher, during the years 1836-1842; by Richard Brinsley Hinds, Esq., Surgeon R.N. London, Smith, Elder and Co., 1844. Vol. ii. Mollusca." The preface to this work contains a masterly digest of the results of his experience on the distribution of Mollusca, especially on those of the W. American coast as compared with the Pacific Islands; the influence of station, depth, temperature, and other causes, both on genera and on particular species; and the comparative effect

of similar differences on the flora and distribution of land shells in the same latitudes. The work therefore is extremely disappointing from its very excellence, as it shows how prepared the author was to fill up the gaps which are to us the most perplexing; but which his early death has left to be supplied by other, we fear less trustworthy hands.

Several valuable donations of shells, with the localities added by Mr. Hinds, are preserved in the British Museum. The new species described are as follow, so far as relates to the fauna of West N. America. The pages and numbers, with the plates and figures, refer to the Zool. Sulph.; but the references are also added to the Proc. Zool. Soc. and the Ann. Nat. Hist.

No.	Plate.	Fig.	Name.	Station.	Depth in fms.	Locality.
5	1	1, 2	<i>Conus Patricius</i> , Hds. A.N.H. xi. 256	sandy mud	7	G. Nicoya.
6	...	...	— <i>coeles</i> , Hds. " " "			
			= <i>C. terebellum</i> , jun., teste Rve. " "			
7	1	3-5	— <i>Californicus</i> , Hds.	sand	7	B. Magdalena.
8	2	1-3	<i>Murex Belcheri</i> , Hds. P.Z.S. 1843, 127	{ mud-bank at head of harb. }	7	San Diego.
			= <i>Pyrula B.</i> , Rve.			
9	3	7, 8	— <i>centrifuga</i> , Hds. " " 126	sand	52	W. C. Veragua.
10	3	9, 10	— <i>Californicus</i> , Hds. " " 128	.....	.....	California.
11	3	11, 12	— <i>hamatus</i> , Hds. " " "	mud	21	B. Guayaquil.
			= <i>Cerastoma</i> , Conr.			
12	3	13, 14	— <i>festivus</i> , Hds. " " 127	sand	7	B. Magdalena.
13	3	15, 16	— <i>foveolatus</i> , Hds. " " 127	sand	7	B. Magdalena.
16	3	21, 22	— <i>radicatus</i> , Hds. " " 128	mud	11	San Blas.
17	3	23, 24	— <i>peritus</i> , Hds. " " 129	sand	7	B. Magdalena.
18	3	3, 4	<i>Typhis quadratus</i> , Hds. " " 18	mud	7-18	G. Nicoya, B. Guayaquil.
22	4	1, 2	<i>Triton vestitus</i> , Hds. " 1844, 21	rocks	shore	Rl. Lj., G. Nic., B. Honda
28	4	13, 14	— <i>anomalus</i> , Hds. " " "	sandy shore	1. w.	Is. Quibo, Veragua.
29	4	15, 16	— <i>lignarius</i> , Brod. " 1833, 5	sandy mud	7	Monte Christi.
30	2	4, 5	<i>Ranella Californica</i> , Hds. A.N.H. xi. 255	.....	.....	San Diego.
31	4	17, 18	— <i>pectinata</i> , Hds.	mud	7	San Blas.
36	1	16, 17	<i>Trophon muricatus</i> , Hds. [The name being preoccupied by Montagu, this species may be called <i>Troph. Hindsii</i> .]	mud	19	Panama.
37	5	1, 2	<i>Pleurotoma nobilis</i> , Hds. P.Z.S. 1843, 37	mud	7	San Blas.
39	5	4	— <i>gemmata</i> , Hds. " " "	mud	7	Gulf Magdalena.
42	5	7	— <i>inermis</i> , Hds. " " "	mud	7	Gulf Magdalena.
45	5	10	<i>Clavatulula militaris</i> , Hds. " " 38	mud	8-30	Veragua.
50	5	15	— <i>ericea</i> , Hds. " " 39	mud	26	Magnetic Is., Veragua.
52	5	17	— <i>sculpta</i> , Hds. " " "	mud	7	Panama.
53	5	18	— <i>rava</i> , Hds. " " "	mud	18	G. Nicoya.
58	6	4	— <i>luctuosa</i> , Hds. " " 40	.....	5-22	G. Magdal., B. Guayaquil.
59	6	7, 8	— <i>aspera</i> , Hds. " " "	mud	5	B. Guayaquil.
60	6	5	— <i>quisqualis</i> , Hds. " " 44	mud	8-14	G. Papagayo.
61	6	9	— <i>plumbea</i> , Hds. " " 41	.....	5	B. Magdalena.
62	6	10	— <i>occata</i> , Hds. " " "	.....	.....	Magnetic Is., Veragua.
63	6	13	— <i>bella</i> , Hds. " " "	{ mud mud mud }	30 8-14 8-14	W. C. Veragua. G. Papagayo. G. Papagayo.
64	6	11, 12	— <i>pudica</i> , Hds. " " "	under stones	1. w.	G. Nicoya.
65	6	14	— <i>neglecta</i> , Hds. " " 45	.....	.....	Magnetic Is., Veragua.
68	6	18	— <i>candida</i> , Hds. " " 42	under stones	1. w.	G. Nicoya.
70	6	20	— <i>merita</i> , Hds. " " "	under stones	1. w.	G. Nicoya.
73	6	23, 24	— <i>impressa</i> , Hds. " " 44	mud	8-14	G. Papagayo.
77	7	1	— <i>pardalis</i> , Hds. " " 42	under stones	1. w.	G. Nicoya.
78	7	6	— <i>cælata</i> , Hds. " " "	mud	20	G. Fonseca.
83	7	11	— <i>micans</i> , Hds. " " 43	mud	14	G. Papagayo.
92	7	18	— <i>rigida</i> , Hds. " " 45	.....	.....	Panama.
95	7	20	<i>Daphnella casta</i> , Hds.	mud	23	G. Nicoya.
104	11	5, 6	<i>Cerithium gemmatum</i> , Hds.	sandy mud	2-7+	Panama.

Page.	No.	Plate.	Fig.	Name.	Station.	Depth in fms.	Locality.
31	127	16	13, 14	? <i>Buccinum metula</i> , <i>Hds.</i>	mud	few	W. C. Veragua.
32	128	...	...	<i>Terebra robusta</i> , <i>Hds.</i> P.Z.S. 1843, p.149	sandy mud	4-18	8° 57'-21° 32' Pan.
32	132	...	...	— <i>varicosa</i> , <i>Hds.</i> " " 152	mud	23	S. Blas, G. Papag., G.N
33	133	...	...	— <i>lingualis</i> , <i>Hds.</i> " " 153	sandy mud	10-17	G. Papagayo.
34	139	...	...	— <i>armillata</i> , <i>Hds.</i> " " 154	.....	5-13	G. Papagayo, B. Mont
							Abundant in various
							calities between P
							and B. Magd., also i
							bedded in fossilifer
							cliffs which surrou
							part of the Bay of M
34	140	...	...	— <i>tuberculosa</i> , <i>Hds.</i> " " 155	.....	4-11	Pan., San Blas, G. Pap
34	141	...	...	— <i>specillata</i> , <i>Hds.</i> " " "	sandy mud	7	San Blas.
				The Pacific analogue of <i>T. textilis</i> , from Str. Macassar, No. 142.			
35	144	...	...	— <i>luctuosa</i> , <i>Hds.</i> P.Z.S. 1843, p. 157	coral sand	12	G. Nicoya, P. Portr.
36	150	9	12, 13	<i>Nassa perpinguis</i> , <i>Hds.</i> .....	.....	.....	B. Magdalena.
36	153	9	18, 19	— <i>mæsta</i> , <i>Hds.</i>	mud	8-14	G. Papagayo.
37	155	10	1, 2	<i>Phos crassus</i> , <i>Hds.</i> A.N.H. xi. p. 257	mud, solitary	3-14	Pan., G. Fonseca.
37	158	10	13, 14	— <i>Veraguensis</i> , <i>Hds.</i> " " "	mud, gregarious	26	Pueblo Nueva, W.
				Pacific analogue of <i>Ph. senticosus</i> .			Veragua.
38	159	10	7, 8	— <i>articulatus</i> , <i>Hds.</i> .....	.....	.....	Panama.
38	161	10	5, 6	— <i>gaudens</i> , <i>Hds.</i> .....	.....	13	G. Tehuantepec.
38	162	10	17, 18	<i>Columbella fusiformis</i> , <i>Hds.</i>	sand	24	Veragua.
39	163	10	19, 20	— <i>pavonina</i> , <i>Hds.</i> .....	.....	.....	(Most prob. America
39	164	10	15, 16	— <i>carinata</i> , <i>Hds.</i> .....	.....	7 and under	Bodegas, San Diego
39	165	10	21, 22	— <i>lentiginosa</i> , <i>Hds.</i>	u. stones with <i>C.</i> <i>pygmæa</i> , com.	beach	G. Nicoya.
39	166	11	11, 12	<i>Trichotropis cancellata</i> , <i>Hds.</i> P.Z.S. 1843, p. 17.	sand	5-7	Sitka Harbour.
40	167	11	13, 14	— <i>inermis</i> , <i>Hds.</i> P.Z.S. 1843, p. 18	sand	5-7	Sitka Harbour.
40	168	11	1, 2	<i>Mitra Belcheri</i> , <i>Hds.</i> A.N.H. xi. 255	mud	17	G. Papagayo, G. Nico
41	170	12	11, 12	<i>Cancellaria ventricosa</i> , <i>Hds.</i> P.Z.S. 1843, p. 47	sandy mud	7 60-70	G. Magdalena } 12° 2'
						8-14	Rl. Lj., San Bl. } 24° 3'
41	171	12	7, 8	— <i>urceolata</i> , <i>Hds.</i> P.Z.S. 1843, p. 47	.....	7	G. Papagayo } 12° 2'
						7	San Blas } 21° 32'
42	172	12	9, 10	— <i>albida</i> , <i>Hds.</i> " " "	.....	7-23	B. Guayaq., Pan., Ven
							2° 47' S.-9° 55' N.
42	173	...	...	— <i>cremata</i> , <i>Hds.</i> " " " p. 48 (=f. 9. Conch. Ill., as <i>C. indentata</i> .)	mud	4-10	Pan.
42	174	12	1, 2	— <i>corrugata</i> , <i>Hds.</i> P.Z.S. 1843, p. 48	mud	7	B. Guayaquil.
42	175	12	3, 4	— <i>elata</i> , <i>Hds.</i> " " "	.....	30	Pan., 1 sp.
43	176	12	5, 6	— <i>funiculata</i> , <i>Hds.</i> " " "	sandy mud	7	G. Magd., 1 sp.
45	185	13	10, 11	<i>Marginella sapotilla</i> , <i>Hds.</i> " 1844, p. 74 Pacific analogue of <i>M. prunum</i> .	sandy mud	5-13	Pan.
46	190	13	22, 23	<i>Erato vitellina</i> , <i>Hds.</i>	sand	7	B. Magdalena.
48	196	...	...	<i>Scalaria Diane</i> , <i>Hds.</i> P.Z.S. 1843, p. 125	mud	36	G. Nicoya.
49	202	...	...	— <i>vulpina</i> , <i>Hds.</i> " " 126 The temperature below being 58°, and at the surface 82°.	mud	30	Is. Quibo, Veragua.
50	205	14	5, 6	<i>Solarium placentale</i> , <i>Hds.</i> P.Z.S. 1844, 22	sand	7	B. Magdalena.
50	206	14	7, 8	— <i>quadriceps</i> , <i>Hds.</i> " " 23	mud	5	Pan.
53	216	...	...	<i>Patella incesa</i> , <i>Hds.</i> A.N.H. x. p. 82	on sea-weed	.....	San Diego.
53	217	...	...	<i>Patelloida depicta</i> , <i>Hds.</i> " " "	on surface of a <i>Zostera</i> , common	.....	San Diego.
53	218	16	7, 8	<i>Crepidula solida</i> , <i>Hds.</i>	on dead & living shells & on each other.	6-10	Bodegas.
				= <i>C. adunca</i> , Sow.			
54	219	19	1	<i>Chiton Magdalensis</i> , <i>Hds.</i>	on rocks, common	.....	B. Magdalena.
56	231	15	5	<i>Melania occata</i> , <i>Hds.</i> A.N.H. xiv. p. 9	.....	.....	River Sacramento, Ca
59	241	16	22	<i>Paludina seminalis</i> , <i>Hds.</i> " x. 83	.....	.....	Ditto.
59	...	...	...	<i>Anodon angulatus</i>	abundant	.....	Ditto.

No.	Plate	Fig.	Name.	Station.	Depth in fms.	Locality.
245	17	1	<i>Paludina nuclea</i> , <i>Lea</i>.....	.....	.....	"Neighbouring locality."
246	17	6	<i>Pecten sericeus</i> , <i>Hds.</i> 1 sp.	mud	53	B. Panama.
248	17	5	— <i>floridus</i> , <i>Hds.</i>	mud	5	San Diego.
249	17	2	— <i>rubidus</i> , <i>Hds.</i> 4 sp.	.....	33	Alashka, N. W. A.
250	17	4	— <i>digitatus</i> , <i>Hds.</i>	mud	23	B. Guayaquil.
256	18	5	— <i>fasciculatus</i> , <i>Hds.</i>	sandy mud	17	W. Veragua.
			<i>Nucula castrensis</i> , <i>Hds.</i> P.Z.S. 1843, p. 98	1 sp., sand	7	Sitka.
			Resembles the fossil <i>N. Cobboldie</i> , and <i>N. divaricata</i> , China Sea, 84 fms.			[Barb. 38° 18'–34° 24'. Bodegas, San Franc., Sta
263	18	13	— <i>cælata</i> , <i>Hds.</i> P.Z.S. 1843, p. 99	.....	6–10	Pan.
266	18	17	— <i>excavata</i> , <i>Hds.</i> " " 100	mud	30	Pan.
267	18	12	— <i>lyrata</i> , <i>Hds.</i> " " "	.....	30	Pan.
269	18	14	— <i>crispa</i> , <i>Hds.</i> " " "	.....	36	G. Nicoya.
271	19	5	<i>Venus Kellettii</i> , <i>Hds.</i> { adhesive mud, } low temp. }	adhesive mud, } low temp. }	30–34	Is. Quibo, W. C. Veragua.
272	21	1	<i>Cytherea</i> (<i>Trigonella</i>) <i>crassatelloides</i> , <i>Conr.</i>	mud-bank in the harbour.	.....	San Diego.
275	19	2	<i>Lucina fenestrata</i> , <i>Hds.</i>.....	.....	7–14	Monte Christi, San Blas.
276	19	6, 7	<i>Psammobia decora</i> , <i>Hds.</i> A.N.H. x. 81 = <i>Sanguinolaria Nuttallii</i> , <i>Conr.</i>	.....	.....	San Diego.
277	21	4	<i>Tellina fucata</i> , <i>Hds.</i>.....	.....	.....	B. Magdalena.
278	21	2	— <i>Bodegensis</i> , <i>Hds.</i>	sand	7	Bodegas.
283	20	11	<i>Corbula fragilis</i> , <i>Hds.</i> P.Z.S. 1843, p. 56	mud	18	W. Veragua.
285	20	12	— <i>obesa</i> , <i>Hds.</i> " " 57	mud	22–33	Pan., Verag., San Blas.
286	20	7, 8	— <i>speciosa</i> , <i>Hds.</i> " " " (= <i>C. radiata</i> , <i>Sow.</i> P.Z.S. 1833, p. 36, non <i>Desh.</i>)	mud	6	Pan., G. Nicoya.
289	20	13	— <i>marmorata</i> , <i>Hds.</i> " 1843, p. 58	mud	26	W. Veragua.
295	20	19	<i>Neæra didyma</i> , <i>Hds.</i> " " 78	mud	26	W. Veragua.
...	...	...	— <i>costata</i> ,.....	mud	26	W. Veragua.
298	19	4	<i>Lingula albida</i> , <i>Hds.</i>	sandy mud	7	B. Magdalena.

Besides these, the following are recorded in the Proc. Zool. Soc. as having been collected by Mr. Hinds:—

1843.	Name.	Station.	Locality.
p. 32	<i>Pleurotoma arcuata</i> , <i>Rve.</i>.....	.....	Veragua.
32	— <i>picta</i> , <i>Beck</i>.....	.....	Pan., San Blas, G. Nicoya
77	<i>Neæra costata</i> (<i>Anatina c.</i> , <i>Sow.</i> , P.Z.S. 1834, p. 87), <i>Hds.</i>.....	.....	St. Elen. 6 fm. sandy mud Magnetic Is., 22 fm. Veragua, 26 fm., mud.
125	<i>Scalaria aciculina</i> , <i>Hds.</i>.....	.....	W.C. intertropical Amer.
160	<i>Terebra strigata</i> , <i>Sow. Tank. Cat.</i> = <i>T. elongata</i> , <i>Wood, Ind. Suppl.</i> = <i>T. flammea</i> , <i>Less. Ill. Zool.</i> = <i>T. zebra</i> , <i>Kien.</i>	common	Pan., <i>Hds.</i>
160	— <i>ornata</i> , <i>Gray</i> <i>Hds.</i> 7 fm. [Cum. 5–7 fm.]	mud	Pan.
1844.		coralsand	Galapagos.]
181	<i>Mitra Hindsii</i> , <i>Rve.</i> <i>Hds.</i> 17 fm.	mud	Gulf Nicoya.

In Mr. Cuming's collection appears *Corbula obesa*, Hinds, San Blas.

The following shells occur in Reeve's *Conchologia Iconica*, as having been collected by Mr. Hinds.

Plate.	Sp.	Name.	Station.	Depth in fms.	Locality.
1	3	<i>Natica Recluziana</i> .....	.....	.....	California.
24	61	Fig. a, b. <i>Patella diaphana</i> , Rve. = <i>Acmaea mesoleuca</i> , Mke. ....	.....	.....	Central America.
5	24	<i>Cardita Cuvieri</i> , Brod. ....	.....	.....	Acapulco.
8	44	<i>Pectunculus pectenoides</i> , Desh., Cuv. R. A. pl. 87. f. 8.	soft mud	7	Panama.
1	4	<i>Arca grandis</i> , Brod. & Sow. ....	.....	.....	Real Llej., B. Guayaqu. (Cuming & Hinds).
21	165	<i>Mitra Hindsii</i> , Rve.	mud	17	G. Nicoya.
4	2	<i>Fissurella volcano</i> , Rve. ....	.....	.....	Sta. Barbara.
7	33	<i>Chiton lineatus</i> , Wood ....	.....	.....	Sitka.
22*	149	— <i>insignis</i> , Rve. ....	.....	.....	Sitka.
3	15	<i>Pleurotoma arcuata</i> , Rve. ....	.....	.....	Veragua.
3	16	— <i>picta</i> , Beck. ....	.....	.....	Pan., San Blas, G. Nic.
4	27	— <i>olivacea</i> , Sow. (comp. <i>P. funiculata</i>)	mud	.....	Pan., W. Mex., G. Nic. (Also Salango, and St. Elena, Cum.)
7	55	— <i>militaris</i> , Hinds	mud	18	Veragua.
9	71	— <i>stromboides</i> , Sow.	mud	7	B. Panama.
6	35	<i>Conus Archon</i> , Brod.	sandy mud	12-18	G. Nicoya.
20	48	<i>Oliva biplicata</i> , Sow.	sands	l. w.	Monterey.

Specimens of the following shells appear in the Brit. Mus. as having been presented by Mr. Hinds; and were doubtless collected by him during the Voyage of the Sulphur.

<i>Tellina rufescens</i> . Guayaquil.	<i>Litorina conspersa</i> . Real Llejos.
<i>Donax carinatus</i> . Tumaco.	— ? <i>fasciata</i> . San Pedro.
<i>Venus neglecta</i> (? <i>crenifera</i>). Acapulco.	<i>Helix levis</i> . California.
<i>Mactra exoleta</i> . Guayaquil.	— <i>areolata</i> , Sow., Pfr. Z. f. M. 1845, p. 154. California, near Columbia R.
<i>Kellia suborbicularis</i> . Panama.	<i>Neverita helicoides</i> (= <i>patula</i>). Acapulco.
<i>Pectunculus maculatus</i> , Brod. = <i>giganteus</i> , Rve. W. Columbia.	<i>Natica</i> (like <i>canrena</i>). Acapulco.
<i>Pinna lanceolata</i> . Guayaquil.	<i>Ranella nana</i> . San Blas.
<i>Perna flexuosa</i> . Conchagua.	<i>Fusus pallidus</i> . Callao.
<i>Chama spinosa</i> . Acapulco.	— <i>Dupetithouarsii</i> (with opere.). Acapulco.
<i>Anomia lampe</i> . Guayaquil.	<i>Murex incisus</i> , Brod. Acapulco.
<i>Chiton lineatus</i> . Sitcha Sound.	— <i>oxyacantha</i> , Brod. Acapulco.
— <i>Simpsonii</i> , Gray. San Francisco.	— <i>humilis</i> , Brod. Bay Guayaquil.
<i>Bulla nebulosa</i> . San Pedro.	— <i>hamatus</i> , Brod. Bay Guayaquil.
<i>Siphonaria lecanium</i> . St. Elena, Guayaq.	
<i>Cerithidea varicosa</i> . Real Llejos, San Blas.	

43. During the years 1838-1842, the United States Exploring Expedition was engaged in its circumnavigation of the globe. In 1839 it touched at Callao, where 30 species of shells were collected; but it did not visit any other part of the Panama province. In 1841, however, the Vincennes and Porpoise were early on the coast of Oregon. The Peacock and Flying Fish arrived there in July; but the Peacock was lost on the bar of the Columbia River. The Expedition proceeded as far as San Francisco, and left in November of the same year. The conchologist to the Expedition was Mr. J. P. Couthouy, who, assisted by his companions, collected about 2000 species of shells (of which about 250 were considered new), and made drawings of the

* 22. 149 (text) 148 (fig.).

animals of about 500. The description of the collections was entrusted to Dr. A. A. Gould of Boston, the well-known author of the 'Report of the Invertebrata of Massachusetts.' In 1846 the descriptions of part of the species were issued in a pamphlet form, to which additions have been made from time to time, as they have appeared in the 'Proc. Bost. Soc. Nat. Hist.' In this work are the following descriptions of species from the Californian and Oregon districts.

- | Page | Page |
|--|--|
| 3. <i>Chiton lignosus</i> , Gld., Puget Sound.
(= <i>C. lignarius</i> , G. MS.) | 46. <i>Melania bulbosa</i> , G., Columbia River. |
| 6. <i>Chiton dentiens</i> , G., Puget Sound. | 49. <i>Natica Lewisii</i> , G., Puget Sound
and Columbia River. |
| „ <i>Chiton muscosus</i> , G., Puget Sound. | 50. <i>Natica caurina</i> , G., Straits of De
Fuca. "Nearly the same as <i>N.</i>
<i>impervia</i> , Phil., from Cape Horn." |
| 7. <i>Patella fimbriata</i> , G., Straits of De
Fuca. | 52. <i>Lacuna carinata</i> , G., Puget Sound. |
| 9. <i>Patella instabilis</i> , G., Puget Sound. | „ <i>Littorina patula</i> , G., San Francisco.
= <i>L. planaxis</i> , Phil. |
| „ <i>Patella conica</i> , G., Puget Sound.
= <i>Scurria mitra</i> , Esch. | „ <i>Littorina lepida</i> , G., Puget Sound. |
| „ <i>Lottia pintadina</i> , G., Straits of De
Fuca, Puget Sound, and Columbia
River (San Francisco). | 53. <i>Littorina scutulata</i> , G., Puget Sound. |
| Max. pars = <i>A. patina</i> , var.:
pars = <i>A. mesoleuca</i> , var.:
teste sp. typ. | „ <i>Littorina plena</i> , G., San Francisco. |
| 10. <i>Patella</i> (? <i>Lottia</i>) <i>textilis</i> , G., Straits
of De Fuca and Killimook. | 55. <i>Trochus ligatus</i> , G., Puget Sound.
= <i>T. filiosus</i> , Wood. |
| „ <i>Patella</i> (? <i>Lottia</i>) <i>scabra</i> , G., San
Francisco. "Perhaps a variety of
<i>P. textilis</i> ." = <i>P. spectrum</i> , Nutt.,
Rve., not <i>P. scabra</i> , Nutt., Rve. | 60. <i>Cerithium</i> (<i>Potamis</i>) <i>sacratum</i> , G.,
Sacramento River. = <i>Pirena Cali-
fornica</i> , Nutt. MS. |
| 13. <i>Fissurella cratitia</i> , G., Puget Sound.
? = <i>F. aspera</i> , Esch. | 61. <i>Cerithium irroratum</i> , Gould. Hab.?
[It is difficult to say how this got
among the Expedition shells, as it
belongs to the Mazatlan, not the
Californian fauna. It may have
been procured at Callao, or by the
accidents of ballast.] = <i>C. stercus-
muscarum</i> , Val. |
| 14. <i>Rimula cucullata</i> , G., Puget Sound.
(? <i>Puncturella</i> .) | 62. <i>Cerithium filiosum</i> , G., Puget Sound. |
| „ <i>Rimula galeata</i> , G. (Classet), Puget
Sound. (? <i>Puncturella</i> .) | 64. <i>Fusus fidicula</i> , G., Puget Sound.
Closely resembles <i>F. turricula</i> . |
| „ <i>Crepidula rostriformis</i> , G., Straits of
De Fuca. = <i>C. adunca</i> , Sow. | 65. <i>Fusus orpheus</i> , G., Puget Sound.
Resembles <i>F. Bamfius</i> . |
| 15. <i>Crepidula lingulata</i> , G., Puget Sound.
"Like <i>C. Capensis</i> , Quoy," 1 sp. | 67. <i>Buccinum fossatum</i> , G., Puget Sound
and mouth of Columbia River.
(San Diego.) (= <i>Nassa fossata</i> ,
G., postea.) Of the same group as
<i>N. trivittata</i> , Say. |
| „ <i>Crepidula nummaria</i> , G., Classet.
[Probably a var. of <i>C. lingulata</i> .] | 70. <i>Nassa mendica</i> , G., Puget Sound,
Nisqually, &c. Pacific analogue
of <i>N. trivittata</i> , Say. |
| „ <i>Calyptrea fastigiata</i> , G., Puget
Sound. [<i>Galerus</i> .] | 74. <i>Solen sicarius</i> , G., Straits of De
Fuca, Oregon. |
| 16. <i>Helix labiosa</i> , G., Astoria, Oregon. | 75. <i>Panopaea generosa</i> , G., Puget Sound,
Oregon. Like <i>P. Aldrovandi</i> . |
| 17. <i>Helix loricata</i> , G., California (Sa-
cramento River). | „ <i>Mya precisa</i> , G., Puget Sound.
Like <i>M. truncata</i> . |
| „ <i>Helix devia</i> , G., ? Oregon. | 76. <i>Macra falcata</i> , G., Puget Sound. |
| 18. <i>Helix strigosa</i> , G., interior of Oregon. | „ <i>Lutraria capax</i> , G., Puget Sound.
(Afterwards changed to <i>L. maxima</i> ,
Midd.) |
| „ <i>Helix sportella</i> , G., Puget Sound. | 77. <i>Osteodesma bracteata</i> , G., Puget Sd.
"Closely resembles <i>O. hyalina</i> ." |
| 31. <i>Succinea rusticana</i> , G., Oregon. | 83. <i>Cardita ventricosa</i> , G., Puget Sound. |
| 41. <i>Limnea lepida</i> , G., Lake Vancouver,
Oregon. | |
| 42. <i>Planorbis opercularis</i> , G., Rio Sa-
cramento, U. Cal. | |
| „ <i>Planorbis vernicularis</i> , G., interior
of Oregon. | |
| 43. <i>Physa virginea</i> , G., Rio Sacramento. | |
| 46. <i>Melania silicula</i> , G., Nisqually, Ore-
gon. (= <i>M. siliqua</i> , G. MS.) | |

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| <p>Page
83. <i>Cardium blandum</i>, G., Puget Sound.
85. <i>Venus rigida</i>, G., Puget Sound, Straits of De Fuca.
86. <i>Cyclas patella</i>, G., Oregon. Resembles <i>C. cornea</i>.
87. <i>Anodon feminalis</i>, G., Oregon.
„ <i>Anodon cognata</i>, G., Nisqually and Fort Vancouver.
„ <i>Alasmodon falcata</i>, G., Wallawalla, Oregon; Sacramento River. = <i>A. margaritifera</i>, var. teste Lea and others.
88. <i>Unio famelicus</i>, G., Wallawalla, Oregon.</p> | <p>Page
93. <i>Mytilus (Modiola) flabellatus</i>, G., Puget Sound, Oregon (Townsend Harbour, San Francisco, and species from G. Calif.). Apparently = <i>Modiola Brasiliensis</i>.
94. <i>Mytilus trossulus</i>, G., Killimook, Puget Sound, Oregon. Appears a var. of <i>M. edulis</i>.
95. <i>Pecten caurinus</i>, G., Port Townsend, Admiralty Inlet, Oregon.
„ <i>Pecten hericeus</i>, G., Straits of De Fuca, Oregon.</p> |
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The localities included in the () are added from the standard work, for which that above quoted was but a preparation, entitled "United States Exploring Expedition during the years 1835-42, under the command of Charles Wilks, U.S.N. Philadelphia 1852-." The plates have not yet found their way to this country. Besides the species already enumerated, are found the following:—

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|--|--|
| <p>2. <i>Arion foliolatus</i>, G., Puget Sound.
3. <i>Limax Columbianus</i>, G., Puget Sd. and Oregon.
36. <i>Helix Vancouverensis</i>, Lea, Oregon.
66. <i>Helix Nuttalliana</i>, Lea, Puget Sd. and Oregon.
„ <i>Helix Townsendiana</i>, Lea, Oregon.
70. <i>Helix germana</i>, G., Oregon.
113. <i>Planorbis corpulentus</i>, G., Oregon.
122. <i>Lymnaea apicina</i>, G., Oregon.
„ <i>Lymnaea umbrosa</i>, Say (Astoria), Oregon, and Sacramento River.
143. <i>Melania plicifera</i>, G., Oregon.
353. <i>Lottia viridula</i>. "Mr. Nuttall brought home several specimens, which he described under the name of <i>monticola</i>" [<i>monticola</i>].
436. <i>Anodonta angulata</i>, G., Sacramento River.
206. <i>Scalaria ? australis</i>, Puget Sound.
This species is from the opposite</p> | <p>side of the equator from <i>S. australis</i>. Dr. Gould thinks it will prove distinct, but cannot yet see any differences.
214. <i>Natica algida</i>, G., Oregon.
219. <i>Trichotropis cancellata</i>, Hinds, Oregon.
241. <i>Triton Oregonense</i>, Jay, Oregon. = <i>Fusus Oregonensis</i> + <i>cancellatus</i>, Rve.
244. <i>Purpura ostrina</i>, G., Oregon.
247. <i>Columbella gausapata</i>, G. *, Oregon.
322. <i>Chiton interstinctus</i>, G., Oregon.
323. <i>Chiton vespertinus</i>, G., Oregon.
399. <i>Saxidomus Nuttalli</i>, Conr., Oregon.
467. <i>Terebratula pulvinata</i>, G., Oregon.
468. <i>Terebratula caurina</i>, G., Oregon.
And the following Nudibranchs:—
<i>Chiorera leonina</i>, G.; 310. ? <i>Dendronotus</i>; 311. ? <i>Goniodoris</i>; 29. ? <i>Doris</i>; ? <i>Æolis</i>.</p> |
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In the Preface to this work, Dr. Gould states his views as to the geographical distribution of species, and gives the following interesting lists of parallel species from different seas:—

OREGON DISTRICT.

Mya præcisa.
Osteodesma bracteatum.
Cardita ventricosa.
Cardium blandum.
Venus calcarea.

ATLANTIC COAST.

M. truncata.
O. hyalinum.
C. borealis.
C. Icelandicum.
V. mercenaria.

* Dr. Gould remarks (p. 270), that "there is a minute operculum to *Mitra*, while there is none to *Columbella*." Of the shells called *Columbellæ*, the typical species, *C. strombiformis*, *major*, and *fusca*, have a broad oval operculum, with the apex at the anterior end of the outside margin; *Nitidella cribraria* has a distinctly Purpuroid operculum; and *Anachis costellata*, &c. have a Pisanoid ungulate operculum. Vide B.M. Maz. Cat. *in loco*.

OREGON DISTRICT.

Alasmodonta falcata.
Helix Vancouverensis.
Helix loricata.
Helix germana.
Planorbis vermicularis.
Planorbis opercularis.
Lacuna carinata.
Natica Lewisii.
Trichotropis cancellata.
Fusus fidicula.
Lottia pintadina.

ATLANTIC COAST.

A. arcuata.
H. concava.
H. inflecta.
H. fraterna.
Pl. deflectus.
Pl. exacutus.
L. vineta.
N. heros.
Tr. borealis.
F. turricula.
L. testudinalis, &c.

To which we may add (from California),—

Solecuretus lucidus.

S. radiatus.

The following are quoted as parallel types between the Gulf of California and the Caribbæan Sea:—

GULF OF CALIFORNIA.

Lutraria undulata.
Macra nasuta.
Lutraria ventricosa [*Macra exoleta*].
Cytherea biradiata.
Natica Chemnitzii, Pfr.

CARIBBÆAN SEA.

L. canaliculata.
M. Brasiliana.
L. carinata.
C. Chione.
N. maroccana. } Mediterranean.

The following species have also been examined and determined by Dr. Gould, from the same collection:—

Helix tudiculata, Binney, Oregon.
Acmea cribraria, G., Columbia River,
 San Francisco, De Fuca.
Modiola elongata, G., Puget Sound.
Solen maximus, Mouth of Columbia R.
Tellina nasuta, Conr., Mouth of Columbia River.
Tellina secta, Conr., De Fuca.
Tellina Californica, Conr., De Fuca.
Tellina Bodegensis, Hinds, Classet.
Anodonta Nuttalliana, Lea, Wallawalla,
 San Francisco.
Buccinum corrugatum, Rve., Puget Sound.
Purpura septentrionalis, Rve., Puget Sd.

Melania plicata, Lea, Oregon.
Melania Wahlamatensis, Lea, Sacramento River.
(Cryptomya) Sphænia Californica, Conr.,
 Sacramento River.
Melania occata, Hds., Sacramento River.
Triton tigrinum, Brod., Puget Sound.
Modiola discrepans, Mont., Puget S. [!]
Modiola ? vulgaris, Puget Sound.
Pecten Fabricii, Phil., Puget Sound.
Fusus cancellinus, Phil., De Fuca.
Pholas (concamerata, Desh. =) penita,
 Conr., San Francisco.
Paludina seminalis, Hds., Sacramento.

In the MS. list of the shells collected in the Oregon and Californian district during the U.S. Exploring Expedition, sent by Dr. Gould, and including the above, there appear 70 species from Oregon, a district before so little known, that only 23 of them have been identified with previous names, the rest having been described by Dr. Gould.

Through the great kindness of Dr. Gould, who showed his desire to make the materials for this Report as complete as possible, by copying out all the valuable information which was in his possession, we are enabled to present the materials from which the foregoing lists were drawn up, in the shape in which they first made their appearance. They are the only documents approaching the authority of "dredging papers," which have been made public, in the whole history of the coast, from Behring's Straits to Panama. They are the memoranda made by Dr. Charles Pickering of the U.S. Expl. Exp.; the specific names having been for the most part added by Dr. Gould on identification.

Box I. OREGON TOUR.

- Anodon cognata*, G., Lake near Nisqually.
Alasmodon falcata, G., Columbia, Spokane, common.
Anodon feminalis, G., Wallawalla.
Helix strigosa, G., Interior of Oregon.
Lymnaea (long spire).
Succinea (spreading mantle).

Box IV. PUGET SOUND.

- Venus* (perhaps a fourth species), Classet.
Tellina (middle size, smooth, not polished, smaller, and a little deflected), common, sandy places.
Tellina secta, Conr. (or allied: larger, truncate at one end; ligament narrow, but elongate), common, sandy places.
Mytilus (size of *edulis*, with a few large costæ); [probably *M. Californianus*, Conr.;] among rocks, low-water mark, Classet.
Fissurella cratitia, G., Classet.
Cardium blandum, G., dredged at Dungeness.
Acmæa ? mitra, Esch., Classet.
Acmæa instabilis, G., Classet.
Acmæa (costate and tuberculate), common.
Acmæa (larger, apex more medial), Classet.
Acmæa (finely striate), rocks, Classet.
Pecten hericeus, G., Classet.
Pecten (young, costæ smooth), Classet.
Scalaria ? borealis, Classet.
Scalaria (large, much elongated, solid), Classet.
Tellina (elongate, concentric striæ), Classet.
Oliva, Classet, dead.
Haliotis (fragment of large species), Classet.
Modiola (one valve, young).
Triton tigrinum.
Crepidula (Capuloid); [probably *C. adunca*.]
Crepidula nummaria, G., Classet.
? Anomia, Classet, dead.
Mytilus (common, like *edulis*).
? Saricava (very short and ventricose), Classet.
Natica algida, G., Classet.
Nassa mendica, G., Classet.
Purpura lagena, G., Classet.
Cerithium filiosum, G., Classet.
Calyptræa ? pileiformis.
Mya (very small), Dungeness.
Cardium, Dungeness (dredged).

Box V. PUGET SOUND.

- Cardium* (largest, used for food).
Pecten hericeus, G., Dungeness.
Purpura septentrionalis, Dungeness.

Box VI. PUGET SOUND.

- Solen sicarius*, G., Dungeness (dredged).
Solen maximus, Classet.
Helix Vancouverensis, Lea.
Helix labiosa, G.

Box VIII. SAN FRANCISCO.

- Cardium ? Californianum* (same as Oregon).
Mytilus (very large, a few shallow ribs, like Classet).
Mytilus trossulus, G. (see *M. edulis*, De Fuca).
Tellina secta, Conr.
Maetra (a thin *Mya*-shaped species: perhaps *Lutraria*).
Mya (*Sphænia*, $\frac{3}{4}$ in.; see Straits of De Fuca).
Tellina (small, like *balthica*).
Fissurella ? cratitia (like Classet).
Acmæa (nearly smooth).
Helix Nickliniana, Lea.
Purpura emarginata, Ducl.
Trochus mæstus.
Littorina planaxis, Nutt. (= *L. patula*).
Acmæa (angulated), Yerba Buena.

Box IX. SAN FRANCISCO.

- Pholas* (small, enlarged, rounded end).
Pholas (smaller, obliquely truncate).
Ostrea (small), Carquinez.
Annicola, Sacramento.
Helix Californiensis, Lea.
Planorbis (form of *campanulatus*), Sacramento.

Box X. SAN FRANCISCO.

- Anodon* (winged), Sacramento.
Alasmodon falcata, G., Upper Sacramento.
Purpura emarginata, Ducl.
Anodon cognata, G., near the Presidio.

Jar 184. SACRAMENTO TRIP.

- Tellina* (small, roundish), Carquinez.
Mytilus glomeratus, G.
Helix Nickliniana, Lea.
Cerithium (*Potamis*) *Californianum*.
Anodon angulatum, Lea.
Planorbis (like *campanulatus*), up Sacramento.
Planorbis (like *trivolvus*), up Sacramento.
Acmæa (smoothish), mouth of harbour.
Acmæa (smaller, more pointed).

Jar 185. SAN FRANCISCO.

Physa virginea, G.
Purpura emarginata.
Littorina patula, G.
Acmaea scabra, G. (ridged and nodulate)
 [= *A. spectrum*, Nutt.]
Trochus (like Puget Sound).
Physa (with truncate spire).
Physa (elongate), from behind Presidio.
Nassa (small, like Puget Sound).
Planorbis (flat and rather fine).
Succinea (small).
Littorina plena, G.

OREGON, BY DRAYTON.

Tellina secta, Conr., below mouth of
 Columbia.
Anodon feminalis, G., Wallawalla.
Anodon Oregonensis, Lea, Wallawalla.
Alasmodon falcata, G., Wallawalla.
Melania plicifera, Lea, mill-dam above
 Vancouver.
Tellina, F. George, stomach of sturgeon.
Limnæa (small), Lake at Vancouver.
Solen sicarius, G.
Melania, Chester River.
Unio famelicus, G., Wallawalla.
Helix labiosa.
Pecten, dredged at Baker's Bay.
Limax Columbianus, G., Nisqually.
Natica Lewisii, G., Puget Sound.
Modiola flabellata, G., Port Discovery.
Pecten Townsendi, Nisqually.
Panopæa generosa, Nisqually.

OREGON TOUR.

Helix strigosa, G.
Planorbis vermiculatus, G., Wallawalla.
Helix Townsendiana, Lea.
Helix devia, G.

Jar 166. DE FUCA TO NISQUALLY.

Limnæa (elongated).
Physa (decollate).

PUGET SOUND.

Fusus fidicula, G.
Pecten (young).
Calyptrea (bis).
Fusus (or *Columbella*, small, smooth).
Venus (very small and smooth).
Chiton (very small).
Modiola (like *discors*).
Trochus virgineus, Wood.
Cardita ventricosa, G.
Fusus Orpheus, G.
Cardium Californianum, Conr.
Trichotropis cancellata, Hds.
Goniodoris.
Bullæoid [species].

Crepidula (small, white, on young *Purpura*).
Doris (like).
Terebratula pulvilla, G.
Terebratula (*septentrionalis*-like).
Natica caurina, G.
Oliva (small).

BROUGHT UP ON ANCHOR.

Chiton (very small and narrow).
Rimula cucullata, G.
Lacuna carinata, G.
Acmaea mitra.
Littorina scutellata, G.
Acmaea textilina, G.
Solen maximus, (mouth of Columbia).
Helix Vancouverensis, Lea.
Limnea (much like *Paludina*), Columbia
 River.
Physa (bis).

JAR, GOING UP TO PUGET SOUND.

Limax Columbianus, G.
Limax foliolatus, G.

DREDGED AT PORT TOWNSEND.

Chioræra leonina, G.
Trochus (bis).
Acmaea (smooth, with *Balanus*).

Jar 1881. OREGON.

Planorbis corpulentus, Say, Fort George.
Limnæa (ventricosa), near Fort George.
Helix Vancouverensis, Lea.
Helix Townsendiana, Lea.
Unio famelicus, Wallawalla.
Cyclas egregia, Vancouver.
Bulla (small, very thin), Puget Sound.
Littorina lepida, Classet.
Buccinum.

DISCOVERY HARBOUR.

Helix, 5 or 6 species.
Cardium blandum, G.
Lutraria capax, G.
Venus ampliata, G.
Mytilus trossulus.
Chiton (shell not appearing externally).

TOWNSEND HARBOUR.

Solen sicarius, G.
Mytilus trossulus, G.
Modiola flabellata, G.
Cardium Nuttallii, Conr.
Natica Lewisii, G.
Bullæoid [species].
Trochus.
Columbella.
Purpura.
Calyptrea.

44. All existing information with regard to the Mollusca of the Boreal districts of North America and the corresponding portion of North-Eastern Asia, will be found embodied in the two following works:—"Beiträge zu einer Malacozoologia Rossica, von Dr. A. Th. von Middendorff. St. Petersburg, 1847:" and "Reise in den Aussersten Norden und Osten Sibiriens, während der Jahre 1843 und 1844, von Dr. A. Th. v. Middendorff. Band II. Zoologie. Theil I. Wirbellose Thiere. St. Petersburg, 1851. Mollusken, pp. 163-464." The author not only describes the results of his own travels, but arranges the discoveries of Eschscholtz (to whose specimens he had access), Mertens, Wosnessenski, and others. The descriptions are very minute and complex, the remarks extremely diffuse, and the references tabulated with consummate learning. Unfortunately, in his comparisons with the British Fauna, he had no better manual than Thorpe's Marine Conchology; the invaluable work of Messrs. Forbes and Hanley not having been then completed. The first part of the 'Malacozoologia Rossica,' entitled "Beschreibung und Anatomie ganz neuer, oder für Russland neuer CHITONEN," containing 151 quarto pages, with 14 plates, consists of an account of 21 species, of which 17 inhabit the Pacific shores. To an account of the principal form, *Chiton Stelleri*, 59 pages are devoted. All who study or describe species in this very interesting and difficult group, will do well to consult as much as their time allows of this comprehensive treatise. It is to be regretted that in the principles which have directed his classification, he has confined his attention to so limited a number of types; and, however burdensome to the memory may be the very numerous genera of modern writers, the subgenera, sections, subsections and divisions found necessary to accommodate only twenty-one out of the many hundreds of known species, by no means lessen the inconvenience. Thus to descend from *genus Chiton* to *species Pallasii*, the Middendorffian student has to master the following phraseology: "Chiton-Phænochiton-Dichachiton-Symmetrogephyrus (B. Apori) Pallasii." The following are the Pacific species; the synonyms being those of Middendorff, unless enclosed in [].

PART I.

Page.	Σ	Plate.	Fig.	Name.	Locality.
37 } 93 }	1	1-9	..... {	<i>Chiton Stelleri</i> , <i>Midd. Bull. Ac. Sc. St. Petersburg</i> , vii. 8. p. 116. = <i>C. amiculatus</i> , Sow. <i>Conch. Ill.</i> f. 80. = <i>C. Sitkensis</i> , Rve. <i>Conch. Ic.</i> pl. 10. sp. 55. ? = <i>C. chlamys</i> , Rve. <i>Conch. Ic.</i> pl. 11. sp. 60.	Abundant near Petropaulowski and the promontory of Lopatka. The Kamtschatkians call it <i>Keru</i> , and eat it.— <i>Steller</i> .
96	2	.....	.....	— <i>amiculatus</i> , <i>Pallas, Nov. Act. Acad. Petrop.</i> ii. 235-7. pl. 7. f. 26-30.	Kurule Is.
98	3	.....	.....	— <i>Pallasii</i> , <i>Midd. Bull. Ac. St. Pet.</i> vi. 117.	Tugurbusen, Ochotsk Sea.
98	4	.....	.....	— <i>submarmoreus</i> , <i>Midd.</i>	Ditto, and Schantar Is.
98	5	10	1-5	— <i>tunicatus</i> , <i>Wood</i>	Sitcha, Kadjak, Atcha.
101	6	11	1, 2	— <i>Wosnessenskii</i> , <i>Midd. Bull. Ac. St. Pet.</i> vi. 119.	N. California, Sitcha, Atcha.
				Comp. <i>Ch. setiger</i> , King [Southern analogue]. Comp. <i>Ch. setosus</i> , Sow.	
109	8	12	8, 9	— <i>lineatus</i> , <i>Wood</i>	N. Calif., Sitcha, Unalashka.
				? = <i>Ch. insignis</i> , Rve. <i>Conch. Ic.</i> pl. 22. sp. 149. f. 148.	
112	9	13	1, 2	— <i>Sitkensis</i> , <i>Midd. Bull. St. Pet.</i> vi. 121 [non Rve.].	Sitcha.
114	10	11	4	— <i>Eschscholtzii</i> , <i>Midd.</i> „ „ „ 118	Sitcha.

Page.	Fig.	Plate.	Fig.	Name.	Locality.
115	11	11	5, 6	<i>Chiton Merckii</i> , <i>Midd. Bull. St. Pet.</i> vi. 20	Sitcha.
124	15	13	3, 4	— <i>lividus</i> , <i>Midd.</i> " " " 120	Sitcha.
125	16	14	1-3	— <i>Mertensii</i> , <i>Midd.</i> " " " 118	Colonie Russ. = Bodejas, Cal.
127	17	14	4, 5	— <i>scrobiculatus</i> , <i>Midd.</i> " " " 121	Colonie Russ. = Bodejas, Cal.
128	18	.....	.....	— <i>Brandtii</i> , <i>Midd.</i> " " " 117	S. coast, Ochotsk; large Schan- tar Is.
128	19	.....	.....	?? — <i>giganteus</i> , <i>Tilesius</i> , <i>Mem. Ac. St. Pet.</i> vol. ix. 1824, p. 473. pl. 16. f. 1, 2. pl. 17. f. 3 bis, 8.	? Kamtschatka.
129	20	.....	.....	?? — <i>setosus</i> , <i>Tilesius</i> , <i>Mem. Ac. St. Pet.</i> vol. ix. 1824, p. 484.	? Kamtschatka.
130	21	.....	.....	?? — <i>muricatus</i> , <i>Tilesius</i> , <i>Mem. Ac. St. Pet.</i> vol. ix. 1824, p. 483. pl. 16. f. 3.	? Kamtschatka and Kurule Is.

The last three are quoted on the authority of Tilesius. The second and third Parts bear date 1849, and contain the general descriptions of shells. The following are from the Pacific.

PART II.

32	4	.....	.....	<i>Patella</i> (<i>Acmaea</i>) <i>cæca</i> , v. <i>Reisewerk</i>	
32	5	.....	.....	— — <i>cassis</i> , <i>Esch.</i> (Represents <i>P. deaurata</i> , Gmel. Str. of Magellan.)	Sitcha.
33	6	.....	.....	— — <i>patina</i> , <i>Esch.</i> , v. <i>Reise.</i>	
34	7	1	6	— — <i>scurra</i> , <i>Less.</i> = <i>Acmaea scurra</i> , D'Orb. = <i>A. mitra</i> , <i>Esch.</i> + <i>A. mammillata</i> , <i>Esch.</i> [not Nutt.] + <i>A. marmorea</i> , <i>Esch.</i> = ? <i>Lottia pallida</i> , Gray, Beech. Voy.	Sitcha.
35	8	.....	.....	— — <i>digitalis</i> , <i>Esch.</i>	Sitcha.
36	9	1	3	— — <i>persona</i> , <i>Esch.</i> + <i>A. radiata</i> , <i>Esch.</i> + <i>A. ancylus</i> , <i>Esch.</i> + <i>A. scutum</i> , D'Orb. (syn. excl.) ? = <i>Lottia punctata</i> , Gray: non <i>Patelloidea punctata</i> , Quoy and Gaim. Voy. Astr. pl. 71. f. 40, 42.	Sitcha.
37	10	1	2	— ? — <i>personoides</i> , <i>Midd.</i> = <i>A. ancyloides</i> , <i>Midd. Bull. St. Peters.</i> vi. 20, non Forbes.	Kenai Bay.
38	11	1	1	— ? — <i>æruginea</i> , <i>Midd.</i>	Bodejas.
38	12	1	4	— ? — <i>pileolus</i> , <i>Midd.</i>	Sitcha.
39	13	1	5	— — <i>Asmi</i> , <i>Midd.</i>	Sitcha.
39	1	.....	.....	<i>Fissurella violacea</i> , <i>Esch.</i> 1829 = <i>latimarginata</i> , Sow. 1834. This well-known S. American species was found by Eschscholtz in the Bay of Conception: Wosnessenski's quotation from Sitcha is probably incorrect.	?Sitcha.
40	2	.....	.....	— <i>aspera</i> , <i>Esch.</i>	?Sitcha, <i>Mertens</i> ; Norfolk Id., <i>Esch.</i>
46	1	.....	.....	<i>Paludinella stagnalis</i> , <i>Linn.</i> , v. <i>Reise</i>	Ochotsk, Black Sea, Caspian.
46	2	.....	.....	— <i>aculeus</i> , <i>Gould</i>	Ochotsk, Lapland.
47	3	10	11-15	— <i>castanea</i> , <i>Möll.</i>	Ochotsk, Lapland.
48	4	.....	.....	— <i>cingulata</i> , <i>Midd.</i> , v. <i>Reise</i>	Schantar Is.
54	3	.....	.....	<i>Lacuna glacialis</i> , <i>Möll.</i>	Ochotsk, Sitcha.
57	3	.....	.....	<i>Littorina grandis</i> , <i>Midd.</i> , v. <i>Reise</i>	Ochotsk, Schantar, Kamtsch.
64	6	.....	.....	— <i>subtenebrosa</i> , <i>Midd.</i>	Isl. Urup, Sea Ochotsk.
64	7	.....	.....	— <i>Kurila</i> , <i>Midd.</i>	Isl. Urup, Schantar, Kenai.

Page.	No.	Plate.	Fig.	Name.	Locality.
64	8	8	13-15	<i>Littorina Sitchana</i> , Phil.	Sitcha, New Albion, Kenai.
66	9	.....	.....	— <i>modesta</i> , Phil.	Sitcha, New Albion.
66	10	.....	.....	— <i>aspera</i> , Phil.	Sitcha, [?] New Albion, <i>Barclay</i> .
68	1	11	1	<i>Turritella Eschrichtii</i> , Midd.	Sitcha.
69	1	.....	.....	<i>Margarita arctica</i> , Leach, var. major..... + <i>M. vulgaris</i> , Leach. ? = <i>Turbo margarita</i> , Lowe. = <i>M. Grœnlandica</i> , Beck. = <i>M. helicina</i> , Möll., Fabr.	Sitcha, Ochotsk, Schantar.
73	3	8	45-6	— <i>sulcata</i> , Sow.	Unalashka.
74	4	.....	.....	— <i>striata</i> , Brod. & Sow. = <i>Turbo carneus</i> , Lowe. = <i>T. cinereus</i> , Couth. = <i>Margarita sordida</i> , Hancock.	Sitcha, Lapland.
83	8	.....	.....	<i>Trochus ater</i> , Less., Phil. <i>Abbild.</i> p. 188. no. 3. pl. 5, 8. f. 6.	Sitcha, <i>Wosn.</i>
84	9	.....	.....	— <i>euryomphalus</i> , Jonas, <i>Abbild.</i> p. 15. no. 4. pl. 6. f. 4.	Sitcha, <i>Esch.</i>
84	10	.....	.....	— <i>mœstus</i> , Jon. <i>Abbild.</i> p. 15. no. 5. pl. 6. f. 5; <i>Mke. in Zeit. f. Mal.</i> 1844, p. 113.	Sitcha, <i>Wosn.</i>
85	11	10	16-18	— <i>modestus</i> , Midd.	Sitcha, <i>Wosn.</i>
85	12	.....	.....	— <i>Schantaricus</i> , Midd., v. <i>Reise.</i>	
86	13	.....	.....	— (Turbo) <i>Fokkesii</i> , Jonas	Sitcha, <i>Wosn.</i>
91	2	.....	.....	<i>Natica aperta</i> , Lov.	Ochotsk, Schantar.
91	3	.....	.....	— <i>clausa</i> , Brod. & Sow. = <i>N. consolidata</i> , Couth. & Phil. = <i>N. septentrionalis</i> , Beck, Möll. = <i>N. ianthostoma</i> , Desh., Guér. Mag. 1841.	Sitcha, Ochotsk, Schantar, Kad-jak, Kamtsch., Lapland, N. Zembl.
93	4	.....	.....	— <i>pallida</i> , Br. & Sow. = <i>N. borealis</i> , Gray, Beech. pl. 37. f. 2. = <i>N. Gouldii</i> , Phil. <i>Zeit. f. Mal.</i> 1845, p. 77, from type. = <i>N. suturalis</i> , Gray, Beech. <i>Voy.</i> p. 136. pl. 37. f. 4.	White Sea, Ochotsk.
94	5	.....	.....	— <i>flava</i> , <i>Gld. Am. Jl. Sc. Art.</i> , vol. 38. 1840, p. 196. = <i>N. lactea</i> , Lov., Phil. = <i>N. Grœnlandica</i> , Beck, Möll. & Thorpe. ? = <i>N. suturalis</i> , Gray. = <i>N. pusilla</i> , Say, teste Phil.	N. Zembla, Is. Paul in Behr. Sea.
96	6	.....	.....	— <i>hereulæa</i> , Midd. ? = <i>N. Lewesii</i> , Gld.	Bodejas.
97	1	.....	.....	<i>Scalaria Grœnlandica</i> , Chemn., Sow., <i>Gld.</i> = <i>S. planicosta</i> , Kien. = <i>S. subulata</i> , Couth., De Kay.	Behring Straits.
98	2	.....	.....	— <i>Ochotensis</i> , Midd., v. <i>Reise.</i>	S. coast Ochotsk.
99	1	.....	.....	<i>Pilidium commodum</i> , Midd., v. <i>Reise.</i> ...	Schantar Is.
100	1	.....	.....	<i>Crepidula solida</i> , Hds.	Bodegas.
100	2	11	3-5	— <i>Sitchana</i> , Midd.	Sitcha, <i>Wosn.</i>
101	3	11	6, 7	— <i>minuta</i> , Midd.	Sitcha, <i>Wosn.</i>
101	4	11	8-10	— <i>grandis</i> , Midd.	Is. Paul, Behring Sea.
103	1	.....	.....	<i>Haliotis Kamtschatkana</i> , Jonas, <i>Z. f. M.</i> 1845, p. 168.	Kamtsch., Unalashka.
104	2	.....	.....	— <i>aquatilis</i> , <i>Rve.</i>	Kurule Is., <i>Rve.</i>
104	1	.....	.....	<i>Velutina haliotoidea</i> , O. Fabr. = <i>V. levigata</i> , L., Gld., <i>Rve.</i> , <i>Donov.</i> = <i>Bulla velutina</i> , Müll. = <i>V. Müllerii</i> , Desh., Guér. Mag. 1841. = ? <i>Sigaretus coriaceus</i> , Br. & Sow.	Lapl., Midd.; Kamtsch., Chiron, Desh.
106	3	.....	.....	— <i>coriacea</i> , Pallas	Kurile, Pallas; Kamt., <i>Steller.</i>
106a	4	.....	.....	— <i>cryptospira</i> , Midd., v. <i>Reise.</i>	Schantar Is., Ochotsk.

Page.	Pl.	Plate.	Fig.	Name.	Locality.
107	1	.....	.....	<i>Trichotropis bicarinata</i> , Sow.....	Behring, Schantar Is., Ochotsk.
107	2	10	7-9	— <i>insignis</i> , Midd.	Behring.
108	3	.....	.....	— <i>borealis</i> , Br. & Sow.	Sitcha, Wosn., Hds.
				= <i>T. costellatus</i> , Couth.	
				= <i>T. Atlantica</i> , Beck.	
				= <i>T. cancellata</i> , Hds.	
				= <i>T. umbilicatus</i> , Macgil.	
109	4	.....	.....	— <i>inermis</i> , Hds.	Sitcha, Hds.
110	1	.....	.....	<i>Cancellaria</i> (<i>Tritonium</i> [!]) <i>viridula</i> , O. Fabr.	Lapl., Behring Sea.
				= <i>Admete crispa</i> , Möll.	
				= <i>Canc. Couthoyi</i> , Jay.	
				= <i>C. buccinoides</i> , Couth.	
				= <i>C. costellifera</i> , Hanc.	
112	2	.....	.....	? — <i>arctica</i> , Midd.	Behr. Str., Wosn.
113	1	.....	.....	<i>Purpura lapillus</i> , Linn.	Sitcha & Urup, Ochot., White S.
				+ <i>imbricata</i> + <i>bizonalis</i> , Lam.	
116	2	9	1-3	— <i>decemcostata</i> , Midd.	Behr. Straits.
117	3	.....	.....	— <i>Freycinetii</i> , Desh., v. Reise.	Sitch., Och., Kamt., Behr., Aleut.
117	4	.....	.....	— <i>septentrionalis</i> , Rve.	Sitcha.
118	2	.....	.....	<i>Pleurotoma Schantaricum</i> , Midd., v. Reise.	Ochotsk, Schantar.
119	3	.....	.....	— <i>simplex</i> , Midd.	Ochotsk.
119	1	.....	.....	<i>Murex monodon</i> , Esch.	Sitcha.
120	2	7	1, 2	— <i>lactuca</i> , Esch.	Sitcha, Kadjak.
				+ <i>M. ferrugineus</i> , Esch.	
125	2	.....	.....	<i>Tritonium</i> (<i>Trophon</i>) <i>clathratum</i> , Linn...	Sitcha, Lapland.
				= <i>T. Gunneri</i> , Lov., Rve.	
				= <i>Fusus lamellosus</i> , Gray, Z. B. V. pl. 36. f. 13.	
				= <i>F. scalariformis</i> , Gld.	
				= <i>Murex multicostatus</i> , Esch.	
				= <i>M. clathratus</i> , Phil. Z. f. M. 1845, p. 78.	
				= <i>Trophon Bamffii</i> , Fabr.	
128	3	.....	.....	— (<i>Fusus</i>) <i>antiquum</i> , Linn. (non Lam.)	Kamt., Behr., Schan., Ochotsk, Lapl., N. Zembl.
				+ <i>T. canaliculatum</i> , Pallas.	
				+ <i>F. fornicatus</i> , Gray, Z. B. V. p. 117; Rve. f. 63.	
138	5	.....	.....	— <i>decemcostatum</i> , Say, Gld. ...	Kadj., Kenai.
140	6	.....	.....	— <i>contrarium</i> , Linn.	Lapl., Ochotsk.
140	7	.....	.....	— <i>deforme</i> , Rve.	Behr. Sea.
141	8	.....	.....	— <i>Islandicum</i> , Chem.	Behr. Sea, Lapl.
				= <i>F. pygmaeus</i> , Gld., Phil.	
				? = <i>F. Holboellii</i> , Möll.	
				= <i>Trit. gracile</i> , Da Cost., Lov.	
				= <i>Murex corneus</i> , Donov.	
				= <i>Fusus Sabini</i> , Hanc.	
145	9	.....	.....	— <i>Sabinii</i> , Gray (nec auct.).....	Kenai, Lapl.
				= <i>Buccinum S.</i> , Gray, Parry's Voy. p. 240.	
				= <i>F. Berniciensis</i> , King, 1846.	
				= <i>F. Sabinii</i> , Gray, Z. B. V. p. 117.	
146	10	.....	.....	— <i>Schantaricum</i> , Midd., v. Reise.	Schant., Is. Paul.
147	11	.....	.....	— <i>Norvegicum</i> , Chemn.	Tugur B., Ochotsk.
147	12	3	5, 6	— <i>Behringii</i> , Midd.	Behr. Sea.
148	13	6	7, 8	— <i>Baerii</i> , Midd.	Behr. Sea.
149	14	2	5-8	— <i>Sitchense</i> , Midd.	Sitcha.
150	15	4	4, 5	— <i>luridum</i> , Midd.	Sitcha.
151	16	.....	.....	— (<i>Buccinum</i>) <i>undatum</i> , Linn.	Lapland.
156	...	.....	.....	— <i>var. Schantarica</i>	Schantar Is.
157	17	.....	.....	— <i>tenebrosum</i> , Hanc.	Sitcha, Lapl.
				= <i>B. cyaneum</i> , Möll.	
				+ <i>B. undulatum</i> , Hanc.	

Page.	No.	Plate.	Fig.	Name.	Locality.
157	17	.....	.....	Tritonium (Buccinum) tenebrosum, Hanc. (continued.) + <i>B. sericatum</i> , Hanc. An. N. H. 1846, p. 328. + <i>B. hydrophanum</i> , Hanc. = <i>B. boreale</i> , Br. & Sow.	
163	18	.....	.....	— — — simplex, Midd., v. Reise.....	Schant.
163	19	.....	.....	— — — Ochotense, Midd., v. Reise....	Ochotsk.
164	21	3	1-4	— — — cancellatum, Lam. = <i>Triton c.</i> , A. s. V. ix. 638. + <i>F. Oregonensis</i> , Rve.	Unalashka, Kadjak, Kamtsch.
167	22	.....	.....	— — — (<i>Polia</i>) scabrum, King*	Kadjak, Wosn.; [S. Am., King.]
168	23	4	11	<i>Polia scabra</i> , Gray, Z. B. V. pl. 36. f. 16. — — — glaciale, Linn. = <i>B. Greenlandicum</i> , Hanc.	Lapl., Ochotsk, Kamtsch.
174	26	{ 4 6 }	{ 12 1-4 }	? = <i>B. polaris</i> , Gray, Z. B. V. p. 128. — — — ovum, Turt. = <i>B. ventricosum</i> , Kr. ? + <i>B. fusiforme</i> , Kr. = <i>Tr. ciliatum</i> , O. Fabr.	Lapl., Behr.
175	27	.....	.....	— — — ooides, Midd., v. Reise.	Tugur, Ochotsk.
179	1	.....	.....	<i>Bulla ampullacea</i> , Midd.	Sitcha, Schantar.
183	1	.....	.....	<i>Limacina arctica</i> , Fabr., v. Reise.	Schantar.
184	1	10	19-22	<i>Tritonia</i> [<i>Dendronotus</i>] <i>arborescens</i> , Müll. = <i>T. Reynoldsii</i> , Couth.	Sitcha, Ochotsk, Lapl., N. Zem.
186	1	12	1-6	<i>Onychotheutis kamtschatica</i> , Midd.....	Kurile.
187	2	.....	.....	— — — <i>Bergii</i> , Licht.....	Behr. Sea.
187	...	.....	.....	? <i>Octopus</i> , sp. ind.	Behr. Sea.

PART III.

1	1	11	11-17	<i>Terebratula psittacea</i> , Gmel.	Sitcha, Lapl.
2	2	.....	.....	— — — <i>frontalis</i> , Midd., v. Reise.	Ochotsk.
5	4	.....	.....	[<i>Placun</i> -] <i>Anomia patelliformis</i> , Linn. ...	Sitcha, Esch.
6	5	.....	.....	— — — <i>macrochisma</i> , Desh., v. Reise.	Aleut., Kamt., Ochotsk.
10	2	12	7, 8	<i>Pecten Islandicus</i> , Chemn. = <i>P. Fabricii</i> , Phil. = <i>P. Pealii</i> , Conr.	N. Zemb., Lapl., ? Behr., ? Kamt.
12	3	{ 12 13 }	{ 9, 10 1-6 }	— — — <i>rubidus</i> , Hds.....	Sitcha, Wosn.; Aljaska, Hds.
17	2	.....	.....	<i>Modiolaria nigra</i> , Gray = <i>M. levigata</i> , Lov., Hanc. = <i>M. laevis</i> , Beck. = <i>M. discors</i> , Beck, Gld., Fabr., Chemn., Phil., Rve.	Ochotsk, Lapl., N. Zem.
20	3	.....	.....	— — — <i>vernica</i> , Midd., v. Reise.	Ochotsk, Is. Kadj.
21	1	.....	.....	<i>Modiola modiolus</i> , Linn. + <i>Mytilus barbatus</i> , Linn. + <i>Mod. papuana</i> , Lam. + <i>M. Gibbsii</i> , Leach. + <i>M. grandis</i> , Phil.	Sitcha, Lapl., Behr.

* This shell is introduced under the title "*Tritonium* (*Buccinum*, Subg. *Polia*, Gray) *scabrum*, King et Broderip," which reminds us of the pre-Linnæan times, and almost destroys the good of binomial nomenclature. Dr. Middendorff may show his philosophical knowledge by uniting *Trophon*, *Chrysodomus*, *Buccinum*, *Pisania* and *Nassa* into one genus; but he has scarcely a right to compel us to use six words (besides the authority for the specific name) in citing his shell. Its presence in the N. Boreal fauna is extraordinary. It is generally regarded as one of the characteristic species of temperate or even tropical South America. It has occurred, however, in pseudo-Mazatlan collections, and was brought by Kellett and Wood. It has the aspect of a deep-water shell, and may therefore have a wide range.

Page.	Fig.	Plate.	Fig.	Name.	Locality.
25	3	{ 13 14 }	{ 7-10 1-8 }	<i>Mytilus edulis</i> , Linn. + <i>M. borealis</i> , <i>abbreviatus</i> , <i>retusus</i> , <i>incurvatus</i> , Lam. + <i>M. pellucidus</i> , Penn. + <i>M. notatus</i> , De Kay. + <i>M. subsaxatilis</i> , Williamson.	Sitcha, Ochotsk, Kamt., Lapl., Is. Paul, Kadj., Kenai, Behr.
28	2	.....	.....	<i>Nucula castrensis</i> , Hds.	Sitcha, Hds.
28	3	.....	.....	— <i>arctica</i> , Br. & Sow.	Kamtsch., <i>Beechey</i> .
29	1	.....	.....	<i>Cardita borealis</i> , Conr.	Ochotsk.
39	9	16	1-5	<i>Cardium Nuttallii</i> , Conr. + <i>C. Californianum</i> , Conr. — <i>Californiense</i> , Desh., v. Reise.	Sitcha, Kenai B., Is. Paul. Sitcha, Ochot., Unal., Behr. Sea.
40	10	15	23-25	.....	Sitcha, Ochot., Unal., Behr. Sea.
44	1	{ 16 17 }	{ 10-12 1, 2 }	.....	Ochotsk, N. Zem., Lapl.
46	5	.....	.....	— <i>corrugata</i> , Brown. = <i>A. semisulcata</i> , Hanc. = <i>A. borealis</i> , Phil., Forbes. = <i>A. lactea</i> , Br. & Sow. Z. B. V. p. 152. = <i>Tellina atra</i> , Pallas.	Aljaska, Behr., N. Zem., Lapl.
51	2	17	11-13	<i>Venerupis Petitii</i> , Desh.	Sitcha, Behr. Sea.
52	3	18	1-3	— <i>gigantea</i> , Desh.	Sitcha, Kamtsch.
56	5	.....	.....	<i>Venus astartoides</i> , Beck, v. Reise.	Ochotsk, Behr.
56	1	18	4	<i>Petricola cylindracea</i> , Desh.	Sitcha.
57	2	18	5-7	— <i>gibba</i> , Midd.	Sitcha, Esch.
58	1	.....	.....	<i>Saxicava pholadis</i> , Linn.	Sitc., Och., Kamt., N. Zem., Lapl.
61	6	.....	.....	<i>Tellina solidula</i> , Pult.	Tugurb., Ochotsk, Behr., Kamt., N. Zem., Lapl., Black Sea.
61	7	.....	.....	— <i>nasuta</i> , Conr.	Sitcha, Behr., Ochotsk.
62	8	17	8-10	— <i>lata</i> , Gmel., v. Reise.	Behr., Ochotsk, Tugurb., Lapl.
62	9	.....	.....	— <i>lutea</i> , Gray, v. Reise.	Behr., Schant., St. Paul.
62	10	.....	.....	— <i>edentula</i> , Br. & Sow., v. Reise.	Ochotsk, Unal., Behr.
62	11	.....	.....	— <i>Bodegensis</i> , Hds.	Bodegas.
66	2	.....	.....	<i>Mactra ovalis</i> , Gld., v. Reise.	Ochotsk, Behr., Kenai.
66	1	19	1-4	<i>Lutraria maxima</i> , Midd. [? = <i>L. capax</i> , Gld.]	Sitcha, Wosn.
67	1	21	1-3	<i>Pectunculus septentrionalis</i> , Midd.	Is. Ukamok, N.W. coast.
68	1	.....	.....	<i>Lyonsia Norwegica</i> , Chemn., v. Reise.	Ochotsk.
69	1	19	13-15	<i>Mya truncata</i> , Linn. [? = <i>M. præcisa</i> , Gld.]	Ochotsk, Lapl., Kamt.
70	2	20	1-3	— <i>arenaria</i> , Linn.	Sitcha, Ochotsk, Lapl., N. Zem.
78	1	21	4-10	<i>Machæra costata</i> , Say, v. Reise.	Sitcha, Ochotsk, Behr., Kamt.

In the *Sibiriens Reise*, additional particulars are given with regard to the following species.

163	1	{ 13 14 }	{ 1-9 1-6 }	<i>Chiton Pallasii</i> , Midd.	Tugur.
174	2	15	1-6	— <i>Brandtii</i> , Midd.	Sitcha, Tugur, Schantar.
178	3	{ 14 15 }	{ 7-10 7, 8 }	— <i>submarmoreus</i> , Midd.	Sitcha, Tugur, Schantar.
183	4	16	6 a-c	<i>Patella</i> (<i>Cryptobranchia</i>) <i>cæca</i> , Müll. ... + <i>P. cerea</i> , Möll. + <i>C. candida</i> , Couth. Some varieties resemble <i>Acmaea testudinatis</i> .	Tugur, Schantar.
186	5	16	{ 4a-d 5b, c 1a-d }	— (<i>Acmaea</i>) <i>pelta</i> , Esch.	Sitcha, Tugur, Schantar, Unalashka.
187	6	16	{ 2a-c 3 }	— — <i>patina</i> , Esch. + <i>A. scutum</i> , Esch. + <i>A. scutum</i> , D'Orb. p. 479, excl. f. 8-10. A white var. from the Ochotsk Sea.	Sitcha, Tugur, Schantar, Unalashka, Aleut., Kenai.

Page.	$\frac{S}{Z}$	Plate.	Fig.	Name.	Locality.
192	7	...	.....	<i>Paludinea stagnalis</i> , Linn. = <i>Paludina stagnalis</i> , Mke. Z. f. M. Jan. 1845, p. 37. = <i>P. muraticus</i> + <i>thermatis</i> , Phil. Sic.	S. coast Ochotsk Sea, on <i>Algae</i> .
193	...	...	.....	A. forma <i>normalis</i> = <i>Turbo ulvæ</i> , Pen. = <i>Paludina ulvæ</i> , Lov. = <i>P. pusilla</i> , Eichwald. = <i>Cingula lævis</i> , De Kay.	Ochotsk Sea.
193	...	...	.....	A ¹ . forma <i>elatio</i> . = <i>Paludina octona</i> , Nilsson. = <i>P. stagnalis</i> , var. <i>b</i> , Mke. = <i>Cyclostoma acutum</i> , Drap. = <i>Turbo ventrosus</i> , Mont. [?] = <i>Rissoa saxatilis</i> , Möll.	
194	7	25	3, 4	A ² . forma <i>ventricosior</i> . = <i>Paludina balthica</i> , Nilss., Lov. = <i>Cyclostoma anatinum</i> , Drap. = <i>Turbo muraticus</i> , Beudant. = <i>Cingula minuta</i> , Gld., De Kay. = <i>Rissoa glabra</i> , Alder. = <i>Paludina</i> ? <i>ulva</i> , Lyell.	
195	8	.....	.....	<i>Paludinea aculeus</i> , Gld. = <i>Cingula striata</i> , Thorpe. = ? <i>Rissoa arctica</i> , Lov.	S. coast Ochotsk.
196	9	25	5-7	— <i>cingulata</i> , Midd.	Schan.
197	10	10	10, 11	<i>Lacuna glacialis</i> , Möll.	Schan., S. Ochotsk.
198	11	11	4-10	<i>Littorina grandis</i> , Midd. <i>Bull. Class. Phys.</i> <i>Math. Ac. St. Petersb.</i> vii. no. 16.	Schan., S. Ochotsk.
201	12	11	13, 14	— <i>Kurila</i> , Midd. <i>Bull. Class. Phys. Math.</i> <i>Ac. St. Petersb.</i> vii. no. 16.	Schan., S. Ochotsk, Kurile.
202	13	11	11, 12	— <i>subtenebrosa</i> , Midd. <i>Bull. Class. Phys.</i> <i>Math. Ac. St. Petersb.</i> vii. no. 16.	S. Ochotsk (Is. Segneka).
203	14	17	13-16	<i>Margarita arctica</i> , Leach, var. <i>major</i> , Midd.	Schan., S. Ochotsk.
204	15	18	1-7	<i>Trochus Schantaricus</i> , Midd.	Schan., S. Ochotsk.
206	16	11	1-3	<i>Natica aperta</i> , Lov.	Schan., S. Ochotsk, Jakshina.
208	17	.....	.....	— <i>clausa</i> , Br. & Sow. = <i>N. consolidata</i> , Couth., Phil. = <i>N. septentrionalis</i> , Beck, Möll.	Schan., S. Ochotsk.
210	18	.....	.....	— <i>pallida</i> , Br. & Sow. = <i>N. borealis</i> , Gray, Z. B. V. pl. 37. f. 2. = <i>N. Gouldii</i> , Phil. Z. f. M. 1845, p. 77.	Schan., S. Ochotsk.
213	19	12	12-14	<i>Scalaria Ochotensis</i> , Midd. [This most remarkable shell has the appearance of an enormous <i>Chemnitzia</i> ; and reminds one of the Oolitic forms which go by that name.]	S. Ochotsk (Bay Nichta).
214	20	17	4-11	<i>Pilidium commodum</i> , Midd.	S. Ochotsk.
216	21	25	8-10	<i>Velutina cryptospira</i> , Midd.	Schan.
218	22	.....	.....	<i>Trichotropis bicarinata</i> , Br. & Sow. + <i>T. Souverbiensis</i> , Less.	Schan., S. Ochotsk, Tugur.
219	23	12	1-9	<i>Purpura Freycinetii</i> , Desh. + <i>P. attenuata</i> , Rve.	S. Ochotsk.
222	24	12	10, 11	— <i>lapillus</i> , Linn.	S. Ochotsk.
223	25	12	17-19	<i>Pleurotoma Schantaricum</i> , Midd.	Schan., S. Ochotsk.
223	26	12	15, 16	— <i>simplex</i> , Midd.	S. Ochotsk.
224	27	.....	.....	<i>Tritonium</i> (<i>Fusus</i>) <i>antiquum</i> , Linn. Var. 1. <i>Behringiana</i> Var. 2. <i>communis</i> , + <i>fornicatus</i> , Rve.	Behring Sea.
229	28	.....	.....	— <i>contrarium</i> , Linn.	S. Ochotsk, Tugur.
230	29	10	7-9	— <i>Schantaricum</i> , Midd.	Schan.
231	30	.....	.....	— (<i>Fusus</i>) <i>Norvegicum</i> , Chemn.	Tugur.

Page.	Fig.	Plate.	Fig.	Name.	Locality.
233	31	10	4-6	Tritonium (Buccinum) undatum, var. Schantarica.	Schan.
234	32	.....	.....	— simplex, Midd. Bull. & c. vii. no. 16	Schan.
235	33	{ 10 9	{ 1, 2 5	— Ochotense, Midd. do.	Tugur.
236	34	8	7, 8	— ovoides, Midd. do.	Tugur.
237	35	8	5, 6	— tenebrosus, Hanc. [pl. 9, err. typ.]	
237	36	8	3, 4	Bullia ampullacea, Midd. [pl. 17. fig. 1-3, err. typ.]	Schan., Tugur.
240	37	.....	.....	Limacina arctica, Fabr. = <i>L. helicalis</i> , Lam., Rve.	Schan.
241	38	18	9-14	Terebratula frontalis, Midd.	S. Ochotsk.
242	39	19	1-5	Anomia macroschisma, Desh.	Schan.
244	40	.....	.....	Modiolaria vernicosa, Midd.	S. Ochotsk.
245	41	.....	.....	— nigra, Gray.	Schan., S. Ochotsk.
245	42	.....	.....	Mytilus edulis, Linn.	S. Ochotsk.
247	44	.....	.....	Cardita borealis, Conr. ? <i>Cardita spurca</i> , Sow.	S. Ochotsk.
248	45	19	6-11	Cardium Californiense, Desh. (nec Conr.)	Schan., S. Ochotsk, Tugur.
250	46	20	1-4	Astarte Scotica, Maton & Rack. = <i>A. semisulcata</i> , Lov., Phil., Möll. = <i>A. Garensis</i> , ? var. Lyell. = <i>A. lactea</i> , Gld. = <i>Venus sulcata</i> , Mont.	S. Ochotsk.
252	48	20	5-13	Venus Astartoides, Beck, n. sp.	S. Ochotsk, Tugur.
253	49	24	1-7	Saxicava pholadis, Linn. = <i>S. gallicana</i> , Lam. = <i>S. rugosa</i> , Lam. = <i>Mytilus rugosus</i> , Penn. = <i>S. Grænlantica</i> , Pot. & Mich. = <i>S. distorta</i> , Say, Gld. = <i>Mya byssifera</i> , Fabr. = <i>Solen minutus</i> , Wood. + <i>Hiatella oblonga</i> , Turt.	S. Ochotsk.
256	50	23	6-11	Tellina nasuta, Conr.	S. Ochotsk, Tugur.
257	51	23	1-5	— lata, Gmel. (nec Quoy & Gaim.) = <i>T. calcarea</i> , Hanl., Lyell, Möll. + <i>T. proxima</i> , Bronn, Hanl., Gray. = <i>T. triangularis</i> , Lyell. = <i>T. sordida</i> , Couth. = <i>Sanguinolaria</i> s., Gould. = <i>Macroma tenera</i> , Leach.	S. Ochotsk.
258	52	21	2, 3	— lutea, Gray. = <i>T. alternidentata</i> , Br. & Sow. = <i>T. Guildfordiæ</i> , Gray.	Schan. Is.
259	53	21	1	— edentula, Br. & Sow.	S. Ochotsk, Tugur.
260	54	22	3-6	— solidula, Pult., Hanl., Wood, Lam., Kryn. = <i>Loripes roseus</i> , Andrij. = <i>T. carnaria</i> , Penn., not Linn. = <i>T. balthica</i> , Phil., Lyell. = <i>T. grænlantica</i> , Lyell. = <i>T. fusca</i> , Say = <i>Psammobia f.</i> = <i>Sanguinolaria f.</i> = <i>T. frigida</i> , Hanl. = <i>T. Fabricii</i> , Hanl. = <i>T. inconspica</i> , Br. & Sow. [Comp. <i>Sanguinolaria Californica</i> , Conr.]	S. Ochotsk.
363	55	.....	.....	Maetra ovalis, Gld. [p. 263, err. typ.] ... = <i>M. ponderosa</i> , Phil. = <i>M. similis</i> , Gray, Z. B. V. p. 154. pl. 44. f. 8.	S. Ochotsk, Tugur.

Page.	Σ Z.	Plate.	Fig.	Name.	Locality.
264	56	24	8-11	Lyonsia Norvegica, Chemn. = <i>L. striata</i> , Turt. (<i>Mya str.</i> , Mont.) = <i>L. gibbosa</i> , Hanc. = <i>Mya hyalina</i> , Conr. teste Couth. = <i>Pandorina arenosa</i> , Möll. = <i>Amphidesma corbuloides</i> , Lam. = <i>Osteodesma corbuloides</i> , Desh. = <i>O. hyalina</i> , Couth., Gld., De Kay.	Schant., S. Ochotsk, Tugur.
266	57	25	11-14	<i>Mya truncata</i> , Linn. + <i>M. Uddevalensis</i> , Hanc. — <i>arenaria</i> , Linn.	S. Ochotsk.
268	58	.....	.....	.....	S. Ochotsk.
269	59	.....	.....	<i>Panopæa Norvegica</i> , Spengler	S. Ochotsk, Tugur.
269	60	.....	.....	<i>Machæra costata</i> , Say	S. Ochotsk (Lebashja).
				= <i>Solecurtus Nuttallii</i> , Conr. = <i>Solen nitidus</i> , Chen. = <i>S. splendens</i> , Chen. = <i>S. Americanus</i> , Chen. = <i>S. medius</i> , Gray, Z. B. V. p. 153. pl. 44. f. 2. = <i>S. maximus</i> , Wood (nec Chemn.) p. 129. pl. 31. f. 3. ? = <i>S. tenuis</i> , Brod. & Sow. ? = <i>S. altus</i> , Brod. & Sow.	

The freshwater and land shells described in this work, pp. 273-308, appear to belong exclusively, either to the general North temperate fauna of the old world, or to the local fauna of the district. They are distributed by Middendorff under three heads, pp. 389 *et seq.* (1) *Circumpolar Fauna*: *Unio margaritifera*, *Planorbis albus*, *Limnæus stagnalis* and *palustris*, *Physa hypnorum*, *Succinea putris*, *Helix pulchella*, *pura* and *fulva*, *Achatina lubrica*, *Vittrina pellucida*. (2) *Boreal Fauna*: *Unio pictorum* and *batavus*, *Anodonta cellensis* and *anatina*, *Pisidium obliquum*, *Cyclas cornea* and *calyculata*, *Planorbis corneus*, *complanatus*, *contortus*, *leucostoma* and *vortex*, *Limnæus auricularius*, *truncatulus*, *leucostomus*, *Physa fontinalis*, *Paludina Kixxii* and *tentaculata*, *Valvata piscinalis*, *Helix ruderala*, *Schrenkii*, *carthusiana* and *hispida*, and *Bulimus obscurus*. (3) *Central Asiatic Fauna*: *Unio Dahuricus* and *Mongolicus*, *Anodonta herculea*, and *Limnæus Gebleri*.

The author enters at considerable length, pp. 351-389, into the influence of Zones, Depths, Temperature and Saltness on the distribution and changes of mollusks; and gives full details of the peculiarities of several specific and generic forms, pp. 330-342. In pp. 309-463, the author distributes the Russian shells into their various Zoological provinces. With the Aral-Kaspian, the Black Sea* and the very limited Baltic faunas, we have now no concern. The Polar fauna (p. 318 *et seq.*) is divided into three sections:—A. The Atlantic species, 30 in number. B. Those of the Behring Sea, 26; and C. the Circumpolar species, 54. To this list are added 50 species, which have not yet been found in the Russian dominions.

* Middendorff gives the following species as common to the temperate latitudes on both sides of the Atlantic:—*Littorina rudis*, *Fusus muricatus*, *Crepidula unguiformis*, *Dentalium dentalis*, *Anomia ephippium*, *Solen ensis*, *Pecten varius*, *Lima squamosa*. Also the following as common to the Mediterranean and the West Indies:—*Conus Mediterraneanus*, *Columbella mercatoria*, *Nassa crenulata*, *Littorina muricata* and *neritoides*, *Cerithium lima*, *Tellina carnaria*, and *Rotella lineata*. Pp. 346-7.

B. *Polar Fauna of the Behring Sea.*

Chiton submarmoreus, tunicatus and vestitus.	Cancellaria arctica.
Patella patina, pelta.	Purpura Freycinetii, decemcostata.
Paludinella ? cingulata.	Pleurotoma Schantaricum, simplex.
Littorina subtenebrosa, Sitchana, grandis.	Tritonium (Fusus) Behringii, Baerii.
Margarita sulcata.	Bullia ampullacea.
Scalaria Ochotensis.	[Placun-] Anomia macrochisma.
Crepidula grandis.	Modiola vernicosa.
Trichotropis insignis.	Nucula arctica.
	Tellina edentula, lutea.

C. *Circumpolar Species*, p. 319.

Patella cæca.	[Placun-] Anomia patelliformis.
Paludinella stagnalis, aculeus.	Pecten Islandicus.
Lacuna glacialis.	Modiola modiolus, nigra.
Margarita striata, arctica.	Mytilus edulis.
Natica pallida, clausa, aperta, flava, helioides.	Nucula pygmæa.
Scalaria grœnlandica.	Cardita borealis.
Velutina haliotoidea.	Cardium Nuttallii. [Probably belongs to B.]
Trichotropis borealis, bicarinata.	Astarte Danmoniensis, Scotica, corrugata, compressa.
Purpura lapillus.	Venus Astartoides.
Tritonium (Trophon) clathratum.	Saxicava pholadis.
T. (Fusus) antiquum, contrarium, Islandicum, Sabinii, Norvegicum, 10-costatum.	Tellina solidula, lata.
T. (Buccinum) undatum, tenebrosus, ovum.	Mactra ovalis.
Limacina arctica.	Lyonsia Norvegica.
Onychothentis Bergii, Kamtschatica.	Mya truncata, arenaria.
Terebratula psittacea.	Panopæa Norvegica.
	Machæra costata.

An analysis of the species belonging to the Pacific waters is given in pp. 349 *et seq.* The following are as yet only known from the Asiatic coast :—

Chiton Pallasii and amiculatus.	Tritonium Schantaricum, simplex, Ochotense, ooides, cancellatum.
Trochus Schantaricus.	Terebratula frontalis.
Pilidium commodum.	

The following have been found both on the east and west sides of the Pacific :—

Chiton Stelleri, Brandtii, lineatus.	Modiola cultellus.
Littorina Kurila.	Cardium Nuttallii, Californiense.
Velutina coriacea, spongiosa.	Venerupis gigantea, Petittii.
Haliotis Kamtschatkana, aquatilis.	Tellina nasuta.

Of the species (so far as we yet know) peculiar to the American shores, the following are recorded by Middendorff as not having been found below Sitcha; the list, however, will have to be materially modified :—

Chiton Sitchensis, lividus, Eschscholzii, Merckii.	Trichotropis insignis.
Patella digitalis, persona, personoides, pileolus, Asmi.	Purpura septentrionalis.
Turritella Eschrichtii.	Tritonium Sitchense, luridum.
Trochus modestus.	Murex lactuca, monodon.
Dentalium politum.	Pecten rubidus.
Crepidula Sitchana, minuta.	Petricola gibba.
	Nucula castrensis.
	Pectunculus septentrionalis.

The following list of species common to Sitcha and California will have to be considerably extended :—

Fissurella violacea, aspera.

Patella scurra.

Littorina modesta and aspera.

Trochus ater, mæstus, Fokkesii, euryomphalus.

Tritonium scabrum.

Petricola cylindracea.

Lutraria maxima.

The following are regarded by Middendorff as peculiar to the Californian province :—

Chiton Mertensii, scrobiculatus.

Patella æruginosa.

Natica herculæa.

Crepidula solida.

Tellina Bodegensis.

The very abnormal appearance of the tropical *Litorina aspera* and *Callopora fluctuosum*, in these Northern lists, awaits confirmation. The *L. aspera* of Barclay may be founded on ballast specimens; or it may be a misnomer for the *L. planaxis* of Nutt., as ordinary coarse specimens of the two might easily be mistaken. The *Callopora*, which appears to extend along the Californian coast, may also have reached Sitcha through human instrumentality. Another circumstance pointed out by Middendorff is remarkable: that two of the largest species of *Crepidula* known, are found on the northern shores of America; one on the Pacific, the other on the Atlantic side.

45. In the years 1843-46, H.M.S. Samarang sailed under the command of Capt. Sir E. Belcher to the East Indies. Although the expedition did not touch upon the western coast of America, there appear in the "Zoology: Mollusca, by A. Adams and L. Reeve; London 1850," the two following species :—

"P. 70. pl. 9. f. 7 a, b. *Calyptræa trigonalis*. China Sea." This scarcely differs in any essential particular from *Crucibulum lignarium*, Brod., and its varieties from South America. The trigonal form may be an accident of growth.

"P. 78. pl. 21. f. 17. *Artemis Dunkeri*, Phil. Eastern Seas." This is the abundant and characteristic species of the Mazatlan district, extending along the coast of Peru. The habitat is probably erroneous.

In all other respects, as might be expected, the species described in this beautiful and most instructive work are entirely distinct from those of the W. American coast.

46. In the "Zeitschrift für Malakozöologie, von Dr. Karl Theodor Menke und Dr. Louis Pfeiffer, Cassel, 1846," pp. 19-21, 51-55, Dr. R. A. Philippi describes the following species from Mazatlan, on the authority of one of his own family :—

Page. No.

- 19 1. *Corbula alba*, Phil. Resembles the Italian fossil *C. carinata*. Perhaps it is the *C. bicarinata*, Sow.
- 19 2. *Tellina cicercula*, Phil. Perhaps = *Strigilla carnaria*, jun. Vide B. M. Maz. Cat. p. 41. no. 66.
- 19 3. *T. lenticula*, Phil. (*Strigilla*).
- 20 4. *T. dichotoma*, Phil. (*Strigilla*).
- 20 5. *T. ervilia*, Phil. (*Strigilla*). In his Abbild. &c. Aug. 1846, p. 24, he quotes *Tellina (Strigilla) pisiformis* and *Diplodonta semispera*, as common to Mazatlan and the Caribbean Sea.
- 20 6. *Diplodonta obliqua*, Phil.
- 21 7. *Lucina cancellaris*, Phil.
- 21 8. *Patella pediculus*, Phil.

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51 18. *Siphonaria Lecanium*, Phil.51 19. *Trochus disculus*, Phil. (*Modulus*).52 20. *Buccinum nucleolus*, Phil. ? An *Anachis*. Described as a miniature edition of *B. prismaticum*. Comp. *B. Antoni*, Dkr., Zeit. f. Mal. 1847, p. 61. no. 6, "Mexico, *Hegewisch*," described as resembling the same shell.53 23. *Terebra fulgurata*, Phil.53 24. *Columbella pallida*, Phil. Resembles *Anachis azora*, Ducl.54 25. *C. spadicea*, Phil. ? Resembles *A. costulata*, Brod. & Sow.54 26. *C. taniata*, Phil.55 27. *Dentalium hyalinum*, Phil.

47. The Mexican War, carried on by the United States, 1846-1848, against their sister republic*, ending in the extension of slavery, was indirectly the means of adding to our knowledge of the Californian and Mexican faunas. Three of the officers, viz. Col. E. Jewett (of Utica, N.Y.) and Major William Rich (of Washington) of the army, and Lieut. T. P. Green of the navy, made collections at different stations from Panama to San Francisco, the whole of which have passed through the hands of Dr. Gould for examination. The number of species collected by Col. Jewett was about 221; by Major Rich, 130; by Lieut. Green, about 172; in all, perhaps 440 species. Many of them were collected alive, and of a large part the localities were noted at the time. It is too much to expect that gentlemen engaged in so fearful and exciting a trade should be able to exercise the calm, patient accuracy needed for scientific pursuits. On doubtful points, therefore, the evidence may need confirmation: still it speaks much for the care and interest for science which these gentlemen manifested, that the supposed errors are few and comparatively unimportant. Several species thought to be new were described by Dr. Gould in the 'Proc. Bost. Soc. Nat. Hist.' Nov. 1851; and have been since reprinted, with additional descriptions and three plates, under the title "Descriptions of Shells from the Gulf of California and the Pacific Coasts of Mexico and California, by Augustus A. Gould, M.D." There is no date, but the work was received last year in this country. In order to promote harmony of nomenclature between the writers in England and America, Dr. Gould ventured to entrust the whole of his valuable collections from the west coast of N. America to the writer, although unknown to him; by whom they were carefully collated with the specimens in the British Museum and the cabinets of Mr. Cuming and Mr. Nuttall†. The result, so far as the new species are concerned, is embodied in a paper laid before the Zoological Society last June; and, so far as relates to the identification of previous species, in the following lists. Of many, however, the specimens had only been lent to Dr. Gould for examination, and have therefore not been seen in this country. When the identifications of species are erroneous, according to English interpretations, the name assigned by Dr. Gould is retained as his own, with the supposed correct one added; in order that the meaning of the species as used by that author may be understood in his other writings. The very interesting locality-notes of Messrs. Jewett and Green contain several entirely unexpected statements, Panama and Mazatlan species being quoted from Sta. Barbara, and *vice versâ*. Some few well-known W. Indian forms also appear from Acapulco and Panama; which it is more natural to regard as importations than as "representative species." The same may be said of the remarkable appearance of *Livona pica* at Sta. Barbara. When we remember the errors that have

* Vide A. A. Livermore's War with Mexico Reviewed. Boston, 1850.

† A large part of the shells in the following lists, however, were not sent to this country; having probably only passed through Dr. Gould's hands for examination.

crept into the works of the most experienced writers, it is not passing the least reflection on the statements of these scientific officers, when we claim liberty to suspend our judgment till the unexpected results have been verified. The principal value of Major Rich's collection (as of those made by Capt. Kellett and Lieut. Wood), appears to be the accumulation of rare and interesting specimens: for geographical purposes, as most of the habitats are simply divided between Upper and Lower California, it cannot be regarded as of much authority.

Of the following species, sent with the others, the name of the collector is not given.

Sanguinolaria Nuttallii, Conr. = *decora*, Hds. San Diego.

Donax bella, Desh. Lower California.

— *sulcatus*, Phil. Zeit. f. Mal. 1847, p. 76. no. 12. ?—

Dione chionæa, Mke. ?—

Mytilus bifurcatus, Conr. "Calif. coast somewhere." Sandw. Is., teste Conr.

Crenella coarctata, Dkr.

Arca ?lurida (or *vespertilio*). ?Mazatlan.

— *solida*, Sow. California.

Ostrea Columbiensis, Hanl., on *Arca grandis*. Lower California.

— *rufa*. Of two specimens thus named, the larger appears = *O. Virginica*, jun.; the smaller may be the young of the elongated form of *O. iridescens*. Calif.

Helix Nuttalliana, Lea, = *fidelis*, Gray. Oregon.

— *Townsendiana*, Lea. Oregon.

— *devia*, Gld. = *Baskervillii*, Pfr. Oreg.

— *Nickliniana*, Lea, = *vineta*, Val. (not = *Californica*, Rve.) Upper California.

— *æruiginosa*, Gld. = *Townsendiana*, var. Pfr. San Francisco.

Helix sportella (384, young shell). ?—

Haliotis ?Kamtschatkana: dead. ?—

Hipponyx serratus, Cpr. ?—

— *mitrula*, Lam. ?—

Modulus dorsuosus, Gld. = *duplicatus*, var. A. Ad. = *disculus*, Phil. ?—

Modulus ?lenticularis, Chemn. Acapulco.

[Probably the W. Indian sp. imported.]

Cerithium interruptum, Mke. ?—

Ovulum secale. ?—

— ? *avena*, Sow. = *simile*, Rve. = *variabilis*, C. B. Ad." ?—

Pleurotoma funiculata, Sow. Lower Calif.

Drillia albovallosa, Cpr. ?—

Terebra albocincta, Cpr. (three dead sp.).

Marginella imbricata, Hds. Sta. Barbara.

Oliva gracilis, Brod. & Sow. ?Panama.

[This appears exactly the W. I. species.]

— *Columbella terpsichore* and *pygmæa*, Jamaica."

Pisania ?articulata, = *P. pusio*, W. I. teste Cuming. ?Panama.

Trophon crassilabrum, Gray. ?Jamaica.

Murex armatus [not *hexagonus*], Ad. ?—

The following is a list of the new species described by Dr. Gould in the "Mexican and Californian Shells," and by the writer in the 'Proceedings of the Zoological Society,' July 8th, 1856; the numbers referring to the latter—the page, plate and figure to the former.

No.	Page.	Plate.	Fig.	Name.	Locality.
1	15	15	1	<i>Pholas</i> (Pholadidea) <i>ovoidea</i> , Gld.	San Diego, <i>Green</i> .
2	16	15	5	<i>Petricola bulbosa</i> , Gld.	Guaymas, <i>Green</i> .
				= <i>P. robusta</i> , Sow. = <i>P. sinuosa</i> , Conr.	
3	...	...	...	<i>Corbula polychroma</i> , Cpr.	Sta. Barbara, <i>Jewett</i> ; Gulf Calif., <i>Lieut. Shipley</i> .
4	17	15	6	<i>Osteodesma nitidum</i> , Gld.	Sta. Barbara, <i>Lieut. Green</i> .
				Probably = <i>Lyonsia Californica</i> , Conr. jun.	
5	19	...	...	<i>Amphidesma flavescens</i> , Gld.	San Diego, <i>Lieut. Green</i> .
				= <i>Semele proxima</i> , B. M. Maz. Cat. p. 28. no. 40, non C. B. Ad.	
6	24	16	1	<i>Tellina miniata</i> , Gld. Proc. B. N. H. S. Nov. 1851... = <i>Sanguinolaria purpurea</i> , Desh. P. Z. S. 1854, p. 346. no. 137; B. M. Maz. Cat. p. 31. no. 46.	San Juan, <i>Lieut. Green</i> .
7	25	16	2	— <i>tersa</i> , Gld.	Panama, Col. <i>Jewett</i> .

No.	Page.	Plate.	Fig.	Name.	Locality.
8	25	16	3	<i>Tellina pura</i> , <i>Gld.</i>	Panama, <i>Col. Jewett</i> , teste <i>Gld. Imp.</i> , San Diego & Mazatlan, <i>Lieut. Green</i> , teste <i>Gld. MS.</i>
9	26	16	5	— <i>gemma</i> , <i>Gld.</i>	San Juan, <i>Lieut. Green.</i>
10	26	16	4	— (<i>Strigilla</i>) <i>fucata</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 91. = <i>Strigilla carnaria</i> , B. M. Maz. Cat. p. 39. no. 66.	Mazatlan, <i>Col. Jewett.</i>
11	21	15	8	<i>Donax flexuosus</i> , <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
12	21	15	9	— <i>obesus</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 90..... = <i>D. Californicus</i> , <i>Conr.</i> , non <i>Desh.</i> = <i>D. laevigatus</i> , <i>Desh.</i>	San Diego, <i>Lieut. Green.</i>
13	20	15	4	<i>Macra mendica</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 88. = <i>Gnathodon trigona</i> , <i>Petit</i> , B. M. Maz. Cat. p. 52. no. 81.	Mazatlan, <i>Lieut. Green.</i>
14	17	...	...	<i>Lutraria ventricosa</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 89. = <i>Macra exoleta</i> , <i>Gray.</i>	Mazatlan, <i>Lieut. Green.</i>
15	18	15	7	— <i>undulata</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 89... Probably = <i>Macra elegans</i> , <i>Sow. Tank. Cat. App.</i>	La Paz, <i>Lieut. Green.</i>
16	...	...	...	<i>Tapes gracilis</i> , <i>Gld. MS.</i>	San Pedro, <i>W. P. Blake.</i>
17	...	...	...	— <i>tenerrima</i> , <i>Cpr.</i>	Panama, <i>Col. Jewett.</i>
18	33	15	10	<i>Venus tantilla</i> , <i>Gld. [Trigona]</i>	Sta. Barbara, <i>Col. Jewett.</i>
19	23	15	2	<i>Arthemis saccata</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 91. = <i>Cyclina subquadrata</i> , <i>Hanl.</i>	Mazatlan, <i>Lieut. Green.</i>
20	28	...	...	<i>Cardium luteolabrum</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 91 ? = <i>C. xanthocheilum</i> , <i>Gld. MS. Cat.</i>	San Diego, <i>Lieut. Green.</i>
21	...	...	...	— <i>cruentatum</i> , <i>Gld. MS.</i>	San Pedro, <i>W. P. Blake.</i>
22	...	...	...	<i>Lucina Artemidis</i> , <i>Cpr.</i>	? Acapulco.— <i>Mus. Gld.</i>
23	22	15	3	— <i>orbella</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 90..... ? = <i>Diplodonta semiaspera</i> , <i>var.</i>	San Diego, <i>Lieut. Green</i> ; Sta. Barbara, <i>Col. Jewett</i> , and <i>Nuttall.</i>
24	27	16	5	<i>Cyrena attilis</i> , <i>Gld.</i>	? Mazatlan, <i>Col. Jewett.</i>
25	29	...	...	= <i>Cyrena Mexicana</i> , <i>var.</i> <i>Anodon ciconia</i> , <i>Gld.</i>	? Mexico, <i>Lieut. Green.</i>
26	29	16	8	? = <i>Anodon glauca</i> , <i>Val.</i> <i>Mytilus glomeratus</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 92	San Francisco, <i>Maj. Rich.</i>
27	...	...	...	<i>Modiola nitens</i> , <i>Cpr.</i>	California.
28	30	16	9	<i>Lithodomus falcatus</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 92 = <i>Lithophagus Gruneri</i> , <i>Phil. (N. Zeal. Mus. Cum.)</i> *	Monterey, <i>Maj. Rich.</i> In hard marly clay.
29	...	...	...	<i>Byssosarca pternoides</i> , <i>Cpr.</i>	San Diego, <i>Webb.</i>
30	31	16	7	<i>Avicula sterna</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 93 ... = <i>A. Atlantica</i> , <i>Mke. not Lam.</i>	Panama, <i>C. B. Ad.</i> ; ? Ma- zatlan, <i>Lieut. Green.</i>
31	32	16	6	<i>Lima tetrica</i> , <i>Gld. Proc. B. S. N. H. 1851</i> , p. 93.....	La Paz, <i>Maj. Rich.</i>
32	2	14	2	<i>Bulimus vegetus</i> , <i>Gld.</i>	San Juan, <i>Lieut. Green.</i>
33	2	14	1	= <i>B. pallidior</i> , <i>Sow. teste Cum.</i> — <i>vesicalis</i> , <i>Gld.</i>	Lower Calif., <i>Maj. Rich.</i>
34	3	14	3	— <i>excelsus</i> , <i>Gld.</i>	California, <i>Maj. Rich.</i>
35	6	14	4	<i>Physa elata</i> , <i>Gld.</i>	Lower California, <i>Maj. Rich.</i>
36	4	14	8	<i>Bulla (Akeria) culcitella</i> , <i>Gld. [Tornatina]</i>	Sta. Barbara, <i>Col. Jewett.</i>
37	5	14	9	— (<i>Tornatina</i>) <i>cerealis</i> , <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
38	...	...	...	— <i>inculta</i> , <i>Gld. MS.</i>	San Diego, teste <i>Gld.</i>
39	...	...	...	— (<i>Haminea</i>) <i>vesicula</i> , <i>Gld.</i>	San Diego, <i>W. P. Blake.</i>
40	3	14	5	<i>Acmaea paleacea</i> , <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
41	8	14	11	= <i>Nacella depicta</i> , <i>Hds.</i> <i>Trochus marcidus</i> , <i>Gld.</i>	On kelp or Zoophytes. Monterey, <i>Lieut. Green.</i>
				= <i>Omphalius Pfeifferi</i> , <i>Phil. teste Cum.</i> = <i>Chlorostoma maculosum</i> , <i>A. Ad.</i> Dr. Gould's shell is perhaps that of Adams ; while his <i>T. Montereyi</i> , <i>Rve.</i> , appears to be the <i>O.</i> <i>Pfeifferi</i> , <i>Phil.</i>	

* This appears absolutely identical with the [?] New Zealand shell. It has no incrustation outside the epidermis. One of Mr. Cuming's species has an internal hinge-lamina.

No.	Page.	Plate.	Fig.	Name.	Locality.
42	9	...	...	Trochus (Monodonta) pyriformis, <i>Gld.</i>	San Diego, <i>Lieut. Green.</i>
				= <i>Osilinus gallina</i> , Forbes, var.	
43	8	...	...	— picoides, <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett</i> ;
				= <i>Livona pica</i> , teste Cuming, &c.	5 sp. (part living).
44	...	...	...	Phasianella compta, <i>Gld.</i> MS.	Sta. Barbara, <i>Col. Jewett</i> ;
					San Diego, <i>Dr. Webb</i> , & <i>W. P. Blake.</i>
45	...	...	...	Crucibulum Jewettii, <i>Cpr.</i>	Mazatlan, <i>Col. Jewett</i> , 1 sp.
46	4	14	7	Crepidula explanata, <i>Gld.</i>	Monterey, <i>Lieut. Green</i> ;
				= <i>C. exuvata</i> , Nutt. Jay's Cat. 3027.	Lower Cal., <i>Maj. Rich.</i>
				= <i>C. perforans</i> , Val.	
47	10	14	12	Modulus dorsuosus, <i>Gld.</i>	Acapulco, <i>Col. Jewett.</i>
48	7	14	10	Narica ovoidea, <i>Gld.</i>	"Purchased at Mazatlan,"
				This shell belongs to <i>Isapis</i> , H. & A. Ad., which is a <i>Fossarus</i> , with a columellar callosity, like <i>Purpura columellaris</i> .	<i>Col. Jewett.</i>
49	...	...	...	?Lacuna unifasciata, <i>Cpr.</i>	Sta. Barbara, <i>Col. Jewett.</i>
50	...	...	...	Cerithidea albonodosa, <i>Cpr.</i>	San Diego, <i>Dr. Webb.</i>
51	...	...	...	— fuscata, <i>Gld.</i> MS.	San Diego, <i>W. P. Blake.</i>
				Probably = <i>C. sacrata</i> , var.	
52	13	14	20	Erato leucophæa, <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
				= (probably) <i>E. columbella</i> , Mke.	
53	7	14	19	Terebra arguta, <i>Gld.</i>	San Juan, <i>Lieut. Green.</i>
				= <i>T. fulgurata</i> , Phil.	
54	13	14	21	Conus ravus, <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
55	14	14	23	— comptus, <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
				= <i>C. purpurascens</i> , jun., rubbed, teste Cuming.	
				= <i>C. achatinus</i> , Mke. non Chemn.	
56	15	14	22	— pusillus, <i>Gld.</i>	Mazatlan, <i>Col. Jewett.</i>
57	12	14	13	Odostomia achates, <i>Gld.</i> [Obeliscus]	Mazatlan, <i>Col. Jewett.</i>
				Comp. <i>O. clavulus</i> , A. Ad.	
58	11	14	14	— gravida, <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
				Closely resembles <i>O. conoidea</i> .	
59	10	14	15	Chemnitzia tenuicula, <i>Gld.</i>	Sta. Barbara, <i>Col. Jewett.</i>
60	11	14	16	— torquata, <i>Gld.</i>	"Obtained at Sta. Barb."
61	6	14	17	Sigaretus debilis, <i>Gld.</i>	La Paz, <i>Lieut. Green.</i>
62	...	...	...	Fasciolaria bistriata, <i>Cpr.</i>	Panama, teste <i>Gld.</i>
63	...	...	...	Olivella intorta, <i>Cpr.</i>	San Juan, <i>Lieut. Green.</i>
64	...	...	...	Marginella Jewettii, <i>Cpr.</i>	Sta. Barbara, <i>Col. Jewett.</i>
65	...	...	...	Columbella Santa-Barbarensis, <i>Cpr.</i>	Sta. Barbara, <i>Col. Jewett.</i>
66	...	...	...	?Nitidella Gouldii, <i>Cpr.</i>	Sta. Barbara, <i>Col. Jewett.</i>
67	12	14	18	Fusus ambustus, <i>Gld.</i>	Mazatlan, <i>Lieut. Green.</i>
68	33	...	...	Purpura pansa, <i>Gld.</i>	W. coast America.
				= <i>Purpura patula</i> , auct.	

Collected by Col. Jewett.

N.B.—The Numbers refer to Dr. Gould's MS. lists. The habitats in *italics* claim most authority.

<i>Pholas concamerata</i> , Desh. 85. <i>Monterey.</i>	<i>Corbula tenuis</i> , Sow. "?= <i>alba</i> , Phil." 79. <i>Mazatlan.</i>
<i>Osteodesma nitida</i> , <i>Gld.</i> (San Blas: Mus. Cum.) 181. Sta. Barbara.	<i>Sanguinolaria grandis</i> , Gmel., Hds. 211. San Francisco.
<i>Corbula bicarinata</i> , Sow. (dead valves). 9. Sta. Barbara.	<i>Amphidesma roseum</i> , <i>Gld.</i> (not Sow.) = <i>decisa</i> , Conr. 3. Sta. Barbara.
— <i>polychroma</i> , Sow. [Gulf Calif. <i>Lieut. Shipley.</i>] 8. Sta. Barbara.	<i>Tellina tersa</i> , <i>Gld.</i> 71*. Panama ("not Maz.")
— <i>ovulata</i> , <i>Gld.</i> = <i>nasuta</i> , Sow. 10. Sta. Barbara. (Dead valves.)	" <i>Strigilla fucata</i> , <i>Gld.</i> = <i>Tellina felix</i> , Ad." (= <i>S. carnaria</i> .) 194. Panama.

- Donax navicula*, Hanl. 74. Panama.
 — *rostratus*, C. B. Ad. = *culminatus*, B.M. Cat. 37. Sta. Barbara, "very plentiful." [?] Non Nutt.
 — *Californicus*, Conr. 37*. Sta. Barb.
 — *gracilis*, Hanl. 183. Sta. Barbara.
 — *flexuosus*, Gld. Sta. Barbara.
Macra Californica, Conr. 71*. Pan. [?]
 — *angulata*, Gray. 109. Panama.
Petricola lamellifera, Conr. = *Cordieri*, Desh. 88, 107. Monterey (do. Hartweg). (Young shell has radiating ribs like *Venus gnidia*, &c.)
 — *lamellifera*, var. = *Cordieri*, Desh. 88. Monterey.
 — *carditoides*, Conr. ? = *cylindracea*, Desh. 84. Monterey, with Bryozoon. ? + *P. Californica*, Conr. = *arcuata*, Desh.
Venus discors, Sow. 228, 229. Panama.
 — —, Gld. = *grata*, Say. 28. Guaymas.
 — *amathusia*, Phil. 231. Panama.
 — *gnidia*, Sow. 227. Panama.
Anomalocardia subrugosa, Sow. 230. Pan.
Tapes tenerrima, Cpr. 187. Panama.
Cytherea lupinaria, Less. 117. Mazatlan.
 — *affinis*, Gld. = *tortuosa*, Brod. 111. Panama.
 — *aurantia*, Hanl. 124. Mazatlan.
 — —. 1. Sta. Barbara. [?]
Trigona crassatelloides, Conr. 2. Sta. Barbara.
 — —. 113. Mazatlan. [?]
 — ? *radiata*, var. *Hindsii*, but more resembles the *Tr. maetroides*. Dead valves. 189. Acapulco.
 — *planulata*, Sow. 94. Mazatlan.
 — *tantillus*, Gld. 14. Sta. Barbara.
Dosinia Dunkeri, Phil. 112. Panama.
Cardita volucris, Gld. = *affinis*, Rve. ?
Cardium biangulatum, Sow. 78. Panama.
 — *obovale*, Sow. 184. Panama.
 — *graniferum*, Brod. & Sow. 191. Maz.
 — *gemmatum*, 55.
 — *maculosum*, Kien. 153. "Panama"
 à *prima manu*, and probably correct; afterwards altered to "San Francisco."
Lucina orbella, Gld. ? = *Diplodonta semiaspera*, var. 83. Sta. Barbara.
Modiola recta, Conr. 87. Sta. Barbara.
Lithophagus falcatus, Gld. = *L. Gruneri*, Phil. 86. Monterey.
Arca gradata, Brod. & Sow. 84. ? Mazatlan.
 — —, Brod. & Sow. 8. Monterey.
 — *concinna*, Gld. = *similis*, C. B. Ad. = *tuberculosa*, var. 82. ? Mazatlan.
 — *tuberculosa*, Sow. 236. Lower Cal.
 — *grandis*, Sow. 186. Panama.
- Arca nux*, Sow. 186 bis. Panama.
 — *Pacifica*, Sow. Panama.
 — *alternata*, Sow. 81. ? Mazatlan.
 —, *sp. ind.* Dead valves. 185. ?
Pectunculus inæqualis, Gld. = *assimilis*, teste Cum. 4. Sta. Barbara. [?]
 — ? *tessellatus*. (Dead valves.) 190. ? Mazatlan.
 — *parcipictus*, Sow. 77. Mazatlan.
Nucula polita. 223. Sta. Barbara.
Avicula sterna, Gld. 93. Panama.
Lima angulata, Sow. 180. Acapulco.
Pecten monotimeris, Conr. + *latiauritus*, teste Nutt. 179. Sta. Barbara.
Bulla cerealis, Gld. 20. Sta. Barbara.
 — *punctulata*, A. Ad. 56. Acapulco.
 — *culcitella*, Gld. 62. Sta. Barbara.
Siphonaria gigantea. 206. Acapulco.
Chiton ornatus, Nutt. 197. Sta. Barbara.
 — *lineatus*, Wood. 198. Panama.
 — "muscosus, G. = *Collei*, Rve." = *Hindsii*, Sow. 199. Panama.
 — *Stokesii*, Brod. 200. San Francisco.
 — *Californicus*, Gld. = *scaber*, Rve. 201. Sta. Barbara.
 — *Sitkensis*, Rve. = *Stelleri*, Midd. 202. Monterey [?].
Acmæa paliacea, Gld. = *Nacella depicta*, Hds. 8. Sta. Barbara.
Nacella incesso, Hds. (from kelp). 6. Sta. Barbara.
Acmæa patina, var. Esch. (= *tessellata*, Nutt.) 7. Sta. Barbara.
 — *gigantea*, = *Kochii*, Phil. 98. Monterey.
 — *pintadina*, Gld. = *verriculata*, Rve. = *patina*, var. Esch. 207. San Franc.
 — *scabra*, Gld. = *spectrum*, Nutt. 210. San Francisco.
 — *scabra*, Nutt. 209. Monterey.
 — —, Nutt. 211. Sta. Barbara.
 — *persona*, Esch. = *Oregona*, Nutt. 211 bis.
 — *mesoleuca*, var. 214. Acapulco.
Halotis Cracherodii, Leach. 183. Monterey.
 — *rufescens*, Swains. 182. Monterey.
Trochus picoides, Gld. 203. " ? Sta. Barbara."
 — *Buschii*, Phil. ? = *inermis*, Gmel. 115. Panama.
 —, *sp. ind.* 216. Mazatlan.
 — (*Omphalius dentatus*, Gmel.) 216 bis. Acapulco. This appears to be the common small smooth W. Indian species; probably imported.
 — *Panamensis*, Phil. 217. Panama.
 — *reticulatus*, Gld. = *Omphalius viridulus*, Gmel. = *Byronianus*, Gray. 219. Mazatlan.

- Trochus Antonii*, var. 9. Sta. Barbara, from kelp.
- *mæstus*. 129. Sta. Barbara.
- *ligatus*, Gld. = *filosus*, Nutt. (closely resembles *dolarius*). 11. Monterey.
- *dolarius*. 10. Sta. Barbara.
- *Norrisii*, Sow. 120. Sta. Barbara.
- *ater*, Less. = *gallina*, Forbes. 116. Monterey.
- Turbo saxosus*, Wood. 226. Panama.
- *pustulatus*, Gld. (may be *tessellatus* or *saxosus*, jun. Cum.) 46. Acapulco.
- *squamigera*, Rve. (Galapagos, Cum.) 218. Panama.
- Phasianella compta*, Gld. 12, 25. S. Barb.
- Nerita elegans* (probably *scabricosta*, var.). 234. Panama.
- "*Neritina harpæformis*:" probably a *lap-sus* for *Columbella h.* Taboga.
- Capulus*. 213. Sta. Barbara.
- Hipponyx Grayanus*, Mke. = *radiatus*, Gray. 205. Panama.
- , sp. ind. 203. Taboga.
- ? *subrufa*, Sow. (white, rubbed). 213. ? Sta. Barbara.
- Calyptrea regularis*, C.B.Ad. = *Galerus mammillaris*, Brod. 148. Sta. Barbara.
- *mammillaris*, Brod. 215. Acapulco.
- , sp. ind. ?—
- Crucibulum spinosum*, Sow. (dead). 148 bis. Sta. Barbara.
- *Jewettii*. 150. Mazatlan.
- ? *imbricatum*, Sow. 212. Acapulco.
- Crepidula excavata*, Brod. 225. Sta. Barb. (like *squama*; apex gone). 151. Sta. Barbara.
- (? *hepatica* =) *onyx*, Sow. Mazatlan [teste list, probably correct: Sta. Barbara, ticket].
- *rostriformis*, Gld. = *adunca*, Sow. 149. Sta. Barbara.
- = *incurva*, Brod. 149. Sta. Barbara.
- Turritella goniostoma*, Val. 235. Panama.
- Modulus dorsuosus*, Gld. = *disculus*, Phil. 47. Acapulco.
- *catenulatus*, Phil. 48. Acapulco.
- Narica ovoidea*, Gld. = *Isapis o.*, H. and A. Ad. 17. Mazatlan.
- Lacuna*. 47. Sta. Barbara.
- Litorina* (? *Lacuna*) *unifasciata*, Cpr. 23, 172. Sta. Barbara.
- *puncticulata*, Phil. = *conspersa*, var. 174. ? Panama.
- ? *pusillus*, Phil. 50. Panama.
- *planaxis*, Nutt., Phil. = *tenebrata*, Nutt. 100. San Francisco.
- *aspera*, Phil. 173. Panama.
- Rissoina ambigua*, Gld. 14. "Valpai-reiso, Mex."
- Planaxis planicostata* (called *sulcata*, Lam.). 53, 58. Panama.
- Vertagus gemmatus*, Hds. 55. ?—
- Cerithium maculosum*, Kien. 153. Pan. (à pr. man. bene, postea San Francisco).
- Cerithidea sacrata*, Gld. = *Pirena Californica*, Nutt. 102. San Francisco.
- *Montagnei*, D'Orb. 13. Panama.
- *solida*, Gld. = *valida*, C. B. Ad. = *varicosa*, Sow. 68. Panama.
- Bittium* (rubbed). 31. Sta. Barbara.
- Ovulum variabile*, C.B.Ad. = *Californicum*, Mus. Cum. No. 34 on kelp thrown up after storm. 32-34. Sta. Barbara.
- Erato scabriscula*, Gray. 26. ? Mazatlan.
- *leucophæa*, Gld. [Mazatlan, Rev. — Steele.] 28. Sta. Barbara.
- , 30. Comp. *E. columbella*, Mke. 27*, 30. ? Mazatlan.
- ? — *Jewettii*, Cpr. 30. Sta. Barbara.
- Cypræa radians*, Lam. 136. Panama.
- *spadicea*, Swains. 118. Sta. Barb.
- *punctulata*, Gray. 108. Panama.
- *pustulata*, Lam. 130. Panama.
- *pediculus*, Linn. (dead). 131. Acapulco [? imported].
- *Pacifica*, Gray. 131*. Acapulco.
- *suffusa*, Gray. 132. Acapulco.
- *Californica*, Gray. 133. Sta. Barb.
- *sanguinea*, Sow. 134. Panama.
- *Solandri*, Gray. 135. Panama.
- Cancellaria brevis*, Sow. Acapulco.
- *clavacula*, Sow. 4. Taboga.
- Strombus granulatus*, Sow. 47, 70. Pan.
- Terebra*, sp. ind. 17. Sta. Barbara.
- *robusta*, Hds. 119. Panama.
- Defrancia bella*, Hds. 18. Sta. Barbara, on zoophytes.
- ? *Mangelia*. [Perhaps this is the *Drillia albovallosa*.] 223. Panama.
- Conus ravus*, Gld. 5. Sta. Barbara.
- , 160. Acapulco.
- *comptus*, Gld. = worn *purpurascens*, jun., teste Cuming. 121. Sta. Barb. [?]
- *pusillus*, Gld. 122. Mazatlan.
- (young, worn). 29. Sta. Barbara.
- Odostomia achates*, Gld. = *Obeliscus*. 17. Mazatlan.
- *gravida*, Gld. 24. Sta. Barbara.
- Chemnitzia tenuicola*, Gld. 19. Sta. Barb.
- *torquata*, Gld. 22. Sta. Barbara.
- Scalaria statuminata*, Sow. (very fine). 240. Taboga.
- Scalaria* (like *venosa*, W. I.). ? Panama.
- Natica Souleyetana*, Recl. 166. Panama.
- *maroccana*, jun. 165. Panama.
- *unifasciata* (= *maroccana*, var.). 163. Panama.
- *Haneti*, Recl. 169. Panama.
- , sp. ind. (rubbed). 167. Panama.

- Natica zonaria*, Lam. (Acapulco, on the sands, Mus. Cum.) 167 pars. Panama.
 —, sp. ind. 164. ?—
 — *uber*, Val.=300+302, C.B.Ad. Pan. Shells, teste Gld. 168. ?—
Ficula decussata, Wood. 178. Taboga.
Dolium ringens, Swains. 204. Panama.
Voluta harpa, Barnes. 154. Mazatlan.
Marginella sapotilla, Hds. 110. Panama.
 —, sp. ind. 27. ? Mazatlan.
Mitra lens, Wood, =*foraminata*, Swains. =*Dupontii*, Kien. 61, 69. Panama.
 — “*auriculoides*?” Probably = *pica*, Rve. 42. Panama.
Fasciolaria bistrata, Cpr. 175. Panama.
Leucozonia cingulata, Lam. 90. Panama.
Triton, sp. ind. Taboga.
 — *constrictus*, Gld. = *Persona ridens*, Rve. (St. John's, Hartweg.) 176. Acapulco.
 ? *Ranella convoluta*, Brod. 6. Taboga.
 — *nitida*, Brod. 89. Panama.
 — *celata*, Brod. 91. Panama.
Oliva ? *eburnea*. 159. ? Panama.
 — *petiolita*, Gld., ? = *rufifasciata*, teste Cum. 15. Sta. Barbara (dead).
 — *plumbea* = *testacea*, Lam. 99. Pan.
 — *angulata*, Wood. 107. Taboga.
 — *biplicata*, Sow. 157. Sta. Barbara.
 — *volutella*, Lam. 158, 161, 162. Pan.
Nassa luteostoma, Brod. 52. Panama.
 — *versicolor*, C. B. Ad. 117. Acapulco.
 — *complanata*, Powys. 44. Panama.
 — *collaria*, Gld. 49. Panama.
 — *corpulenta*, C. B. Ad. 51. Panama.
 — *perpinguis*, Hds. 114. Sta. Barbara.
Tritonidea pagodus, Rve. 95. Panama.
Purpura columellaris, Lam. 65. Acapulco.
 — *emarginata*, Desh. = *Conradi*, Nutt. 104. San Francisco.
 — “*undata* (? *bicostalis*)” = *biserialis*, Blainv. 238. Panama.
 —, sp. ind. 104. ? Mazatlan.

- Purpura sanguinolenta*, Desh. = *Pisania hemastoma*, Gray. 224. Panama.
 — *kiosquiformis*, Ducl. 105. Panama.
 — *septentrionalis* (appears = *lapillus*, var.). 97. San Francisco (also Nutt.).
 — *melones*, Ducl. 106. Panama.
Ricinuia ? *carbonaria*. 67. Panama.
Monoceros punctatum, Sow. = *lapilloides*, Conr. 101. San Francisco.
 — *brevidentatum*, Brod. [?]. 103. San Francisco.
 — *unicarinatum*. 101. San Francisco.
Columbella gibberula, Sow. (on anchor). Sta. Barbara.
 — *gibberula*, Sow. 16. Taboga.
 — *carinata*, Hds. 35. Sta. Barbara.
 — *Gouldii*, Cpr. 36. Sta. Barbara.
 — *Santa-Barbarensis*, Cpr. 172. Sta. Barbara.
 — *bicanalifera*, Sow. 38. Taboga.
 — *nigricans*, Sow. 39, 40. Taboga.
 — *guttata*, Sow. (à pr. man. = *cribraria*, Lam.) 43. Mazatlan.
 — (*worn*). 49*. Acapulco.
 — *festiva*, Rve. 281. Acapulco.
 — *major*, Sow. 54. Panama.
 — —. 102. Mazatlan.
 — *hemastoma*, Sow. 57, 155. ? Pan.
 — *rugosa*, and var. 221. Panama.
 — *harpaformis*, Sow. Taboga.
 — ? *parva*, Sow. 96. ? Panama.
 — *maculosa*, Sow. ?—
Truncaria modesta, Pow. 152. Panama.
 — —. 72. Sta. Barbara [?].
Engina ferruginosa. 41. [? W. I. imported.]
 — *crocostoma*, Rve. 67. Panama. [Galap. Cuming.]
Concholepas Peruviana, Lam. 139. Panama [surely imported].
Fusus, sp. ind. 175. Panama.
Cyrtulus distortus, Gray. 75. Panama.
Murex Nuttalli, Conr. 92. Panama [?].

Collected by Lieut. Green.

- Pholas ovoidea*, Gld. 181. San Diego.
 — *Californica*, Conr. = *Janellii*, Desh. 182. San Diego.
 — *penita*, Conr. 184. San Diego.
Platyodon cancellata, Conr. 162. San Diego.
Osteodesma Californica, Conr. 192. San Diego.
 “*Anatina argentaria*, Conr. = *Periploma planiuscula*, Sow.” = *Periploma Leana*, teste Cuming. 27. Guaymas.
Thracia granulosa, Gld. = *plicata*, Desh. 10. La Paz.

- Solen maximus*, Wood = *Nuttalli*, Conr. 21. San Francisco.
Solecuretus Californianus, Gld. = *subteres*, Conr. 188, 189. San Diego.
 “*Sanguinolaria miniata*,” Gld. = *purpurea*, Desh. 37. San Juan.
Psammobia decora, Hds. = *Sanguinolaria Nuttalli*, Conr. 140. San Diego.
Cumingia Californica, Conr. 171, 195, 196. San Diego.
Semele decisa, Conr. 134. San Diego.
 — *flavicans*, Gld. = *S. proxima*, B. M. Cat., not C. B. Ad. 191. San Diego.

- Semele rubrolineata*, Conr. = *S. simplex*, A. Ad. teste Cum.* 141. *San Diego*.
Tellina [resembling *Suënsœi*, Mörch, Brazil, and *T. calcarea*]. 142. *San Diego*.
 — *gemma*, Gld. 198. *San Juan*.
 — *pura*, Gld. 197. *San Diego*.
 — —. 57. *Mazatlan*.
 — *secta*, Conr. 139. *San Diego*.
 — *nasuta*, Conr. 147. *San Diego*.
 — *vicina*, C. B. Ad. 130. ? *Mazatlan*.
 — —, C. B. Ad. 188. *Acapulco*.
 — *regia*, Hanl. 52. *Mazatlan*.
Donax punctatostriatus, Hanl. 55. *Mazatlan*.
 — *carinatus*, Hanl. 93. *Mazatlan*.
 — *Californicus*, Conr. = *lævigatus*, Desh. 159. *San Diego*.
 — *abruptus*, Gld. = *Californicus*, Conr. var. 160. *San Diego*.
 — *Californicus*, Conr. var. 161. *San Diego*.
 — —, var. 199. *San Juan*.
Macra (*Lutraria*) *nasuta*, Gld. [? = *falcata*]. 49. ? *Mazatlan*; *San Pedro*.
 — *Californica*, Conr. 100. ? *Mazatlan*.
Lutraria ventricosa, Gld. = *Macra exoleta*, Gray. 50. ? *Mazatlan*.
 — *undulata*, Gld. 9. *La Paz*.
Gnathodon mendicus, Gld. = *Rangia trigona*, Petit. 95. ? *Mazatlan*.
 "Saxidomus Nuttalli, Conr. = *Venerupis Petitii*, Desh." = *Tapes maxima*, Phil. 156. *Monterey*.
Saxicava carditoides, Conr. 110, 111. ? *Monterey*.
 — *Cordieri*, Desh. = *Venus lamellifera*, Conr. 107. *Monterey*.
 —, sp. ind. 11. *La Paz*.
 — *pholadis* (Desh., Guér. Mag. 1841, pl. 40). 29. *San Diego*.
Petricola bulbosa, Gld. = *robusta*, Sow. 31. *Guaymas*.
 — *dactylus*, Sow. (very rare). 11. *La Paz*.
Venus, sp. ind. 124. ? *Mazatlan*.
 — *amathusia*, Phil. 83, 59. *Mazatlan*.
 — —. 53. *Mazatlan*.
 — *Columbensis*. 85, 87. *Guaymas*.
 — *gnidia*, Sow. 63. *Mazatlan*.
 — *straminea*, Conr. 22. *Guaymas*.
 — *reticulata*. 17. *La Paz*.
 — *simillima*, Sow. 172. *San Diego*.
 — *Californiensis*, Brod. (not Conr.), Mus. Cum. 146. *San Diego*.
Venus Petitii, var. = *straminea*, var. teste Nutt. 185. *San Diego*.
 — *Californicus*, jun., Conr. = *compta*, Mus. Cum. 171. *San Diego*.
 — —, = *compta*, Mus. Cum. 61. *Mazatlan*.
 — *fluctifraga*, Gld. = *Nuttalli*, Conr. (non Desh.)†. 145. *San Diego*.
Anomalocardia subrugosa, Sow. 58. *Mazatlan*.
Dione circinata (*Mazatlan*, Rev. — Steele). 73. ? *Mazatlan*.
 — *rosea*. 62. *Mazatlan*.
 — *dione*, Gld. = *lupinaria*, Less. 129. Is. 3 Marias.
 — *biradiata*, Gray = *D. Chionæa*. 7. *La Paz*.
Dosinia Dunkeri, Phil. 56. ? *Mazatlan*.
 — *gigantea*, Sow. 19. *La Paz*.
 — *saccata*, Gld. = *Cyclinassubquadrata*, Hanl. 99. *Mazatlan*.
Trigona crassatelloides, Conr. 153. *San Diego*.
 — —. 94. *Mazatlan*. [?]
 — *corbicula*, Gld. = *radiata*, Sow. 122. ? *Mazatlan*.
Chama Pacifica, Gld. = *C. frondosa*, var. *Mexicana*. On *Vermetus*. 24. *Guaymas*.
 — *exogyra*, Conr. *San Pedro*.
 — —, with *C. venosa*. 150. *San Diego*.
 — *pellucida*. 176. *San Diego*.
Cardita affinis, Gld. = *Californica*, Desh. 26. *Guaymas*.
Cardium Panamense, Sow. 84. ? *Mazatlan*.
 — *xanthocheilum*, Gld. = *luteolabrum*, Gld. 132. *San Diego*.
 — *Nuttalli*, Conr. = *Californiense*, Desh. 138. *San Diego*.
 — *substriatum*, Conr. 158. *San Diego*.
 — *elatum*, Sow. 194. *San Diego*.
Diplodonta orbella, Gld. [do. Nutt.] 137, 138. *San Diego*.
Lucina punctata, Linn. 16. *La Paz*.
 — —, Linn. 136. *San Diego*.
Cyrena altilis, Gld. = *Mexicana*, var. 79. ? *Mazatlan*.
Anodon ciconia, Gld. 48. ? *Mexico*.
Mytilus, sp. ind. 47. *San Francisco*.
Modiola, sp. ind. 20. *San Francisco*.
 — *capax*, jun. 173. *San Diego*.
 — —, Conr., very large valve. 4. *La Paz*.
Lithophagus falcatus, Gld. = *Gruneri*, Phil. 117. *Monterey*.

* The locality given to *S. simplex* by Lieut. Belcher is "China Seas;" but, as in the case of *Dosinia simplex*, is almost certainly erroneous.

† This is the *V. callosa* (quasi Conr.) of Deshayes. The specimen is marked "Stutchburyi;" which is a closely allied species from the Pacific Islands, with differently shaped teeth, no posterior crenations, and displaying a few *Cardium*-like intercalations at the margin.

- Lithophagus attenuatus*, Desh. 180. *San Diego*.
 ———, sp. ind. 183. *San Diego*.
Pectunculus giganteus, Rve. 32. *Guaymas*.
 ——— *assimilis*, Sow. 86. ? *Mazatlan*.
Avicula sterna, Gld. 60. ? *Mazatlan*.
Meleagrina, sp. 80. ? *Mazatlan*.
Perna flexuosa, Sow. = *Chemnitziana*, D'Orb. 81. *Mazatlan*.
 ———, = *Chemnitziana*. 103. *La Paz*.
Pecten ? *purpuratus* = *ventricosus*, Sow., with *Bivonia indentata*. 144. ? *San Diego*.
 ——— *latiauritus*, Conr. + *monotimeris*, teste Nutt. 131. *San Diego*.
 ——— *nodosus*. 3. *La Paz*.
 ——— *dentatus*, Sow. 6. *La Paz*.
Hinnites gigantea, Gray = *H. Poulsoni*, Conr. 1834. 149. *San Diego*.
Spondylus "varians, Sow." 1. *La Paz*.
 ——— "pictorum, Chem. = *crassisquama*, Lam." 2. *La Paz*.
Ostrea Cumingiana, Dkr. 5. *La Paz*.
 ——— *palmula*, Cpr. 147. *San Diego*.
 ——— *conchaphila*, Cpr., 1.5 in. long; very thin; (*Oregon*, *San Diego*, Nutt.), no tendency to crenations; striped. 174. *San Diego*.
Bulla nebulosa, Gld. 175. *San Diego*.
Bulimus vegetus, Gld. = *pallidior*, Sow. *San Juan*.
Helix tudiculata, Binney. 151. *San Diego*.
 ——— *Kellettii*, Forbes. 152. *San Diego*.
Melampus olivaceus, Cpr. 193. *San Diego*.
Chiton articulatus, Br. 74. *Mazatlan*.
 ——— *Blainvillei*, Br. 133. *San Diego*.
 ——— *Magdalenensis*, Hds. 72. *Mazatlan*.
Patella Mexicana, Lam. 67. *Mazatlan*.
 ——— *discors*, Phil. 125. *Mazatlan*.
Acmaea ? 125. ? *Mazatlan*.
 ——— *gigantea* = *Kochii*, Phil. 166. *San Diego*.
 ——— *pintadina*, Gld. = *verruculata*, Rve. = *patina*, var. 66. *Mazatlan* [?].
 ———, = *mesoleuca*, Mke. 65. *Mazatlan*.
 ———, = *leucophæa*, Nutt. = *pelta*, Esch. 75. *Mazatlan* [?].
 ———, = *fascicularis*, Mke. 164, 177. *San Diego*.
 ——— ? 167. *San Diego*.
 ———, = *scabra*, Nutt., var. 168, 178. *San Diego*.
 ———, = *Oregona*, var. Nutt. = *per-sona*, Esch. 169. *San Diego*.
 ——— *scabra*, Gld. = *spectrum*, Nutt. 179. *San Diego*.
 ——— ? *spectrum*, var. [May be an *arau-cana*, D'Orb., imported from *Valpa-raiso*]. 64. *Mazatlan* [?].
Acmaea patina, var. *cinis*, Rve. 116. *Mont.*
 ———, var. *tessellata*, Nutt. 165. *San Diego*.
 ? *Fissurella*. 163. *San Diego*.
 ——— *virescens*, Sow. 70. *Mazatlan*.
 ——— *volcano*, Sow. 163. *San Diego*.
Turbo fluctuosus, Wood = *Fokkesii*, Jonas. 148. *San Diego*.
 ———. 120. *Mazatlan*.
Trochus unguis, Wood = *digitatus*. 108. ? *Mazatlan*.
 ——— *filosus*. 157. *San Diego*.
 ——— *dolarius*. 115. *Monterey*.
 ——— *virgineus*. 114. *Monterey*.
 ——— *olivaceus*, Wd. 92. ? *Mazatlan*. (A specimen, no. 388, marked "Sandwich Is." must have been imported there.)
 ——— *Montereyi*, Kien. = *Pfeifferi*, Phil. 113. *Monterey*.
 ——— (*Omphalius*) *fuscescens*, Phil. 123. ? *Mazatlan*. (The *O. Californicus*, A. Ad., appears to be only a flattened var. of this shell.)
 ——— "aureotinctus, Fbs. = *cateniferus*, Pot." 186. *San Diego*.
 ——— *striatulus*, Kien. = *brunneus*, Phil. Mus. Cum. 187. *San Diego*.
 ——— *pyriformis*, Gld. = *gallina*, var. M. Cum. 155. *San Diego*.
Nerita multijugis, Mke. = *scabricosta*, Lam. 118. *Panama*.
 ——— *Bernhardi*, Recl. *Guaymas*.
Neritina picta, Sow. 126. *St. Michael*.
Calyptrea regularis, C. B. Ad. = *Galerus mamillaris*, Brod. 51. *Mazatlan*.
Crucibulum spinosum, Sow. 190. *S. Diego*.
Crepidula explanata, Gld. = *exuviata*, Nutt. = *perforans*, Val. 112. *Monterey*.
Aletes squamigerus, Cpr. *San Pedro*.
Modulus "? *disculus*, Phil." (perhaps *catenulatus*, Phil.). 82. *Mazatlan*.
Cerithium irroratum, Gld. = *stercusmuscarum*, Val. 78. *Mazatlan*.
Cerithidea fuscata, Gld. = *sacrata*, var. teste Nutt. *San Diego*.
Potamis Hegewischii, Gld. = *Cerithi-dea varicosa*, var. *Mazatlanica*. 71. *Mazatlan*.
Ovulum variabile, C. B. Ad. = *Californi-cum*, Mus. Cum. 36. *San Juan*.
Cypraea radians, Lam. 68. *Mazatlan*.
Cancellaria gonistoma, Sow. 56. *Mazatlan*.
Strombus gracilior, Sow. 8. *La Paz*.
Terebra arguta, Gld. = *fulgurata*, Phil. 35*. *San Juan*.
Conus regularis, Sow. 23, 25. *Guaymas*.
 ——— *princeps*, Linn. 90. *San Juan*.
 ———, sp. ind. 33. *Guaymas*.
 ———, sp. ind. 35. *Guaymas*.

Solarium ? quadriceps, Hds. (dead). 106. Mazatlan.
Natica patula, Sow. 77. Mazatlan.
 — *maroccana* = *Pritchardi*, Forbes. 96.
 ? *Guaymas*. Specimens exactly like, are in Mus. Cum. from Soc. Is.
 — *bifasciata*, 97. ? *Guaymas*.
 — *Recluziana*, 154. *San Diego*.
Sigaretus debilis, Gld. 98. *La Paz*.
Ficula ventricosa, Sow. = *decussata*, 121. ? Mazatlan.
Cassis coarctata (dead). 89. *San Juan*.
Oniscia tuberculosa, Sow. 38. *San Juan*.
Oliva porphyria, Linn. 14. *La Paz*.
 — ? *eburnea*, 34. *San Juan*.
 —, sp. ind. 41. *San Juan*.
 — *tergina*, Ducl. 42, 43. *San Juan*.
 — *intorta*, 44. *San Juan*.
 — *splendidula*, Sow. 104. *La Paz*.

Purpura patula, Linn. 40. *La Paz* (list). *San Juan* (ticket).
 — *emarginata*, 12. *La Paz*.
 — *biserialis*, Blainv. 101. *La Paz*.
 — *kiosquiformis*, Ducl. 88. *La Paz*.
 —, sp. ind. 13. *La Paz*.
Monoceros muricatum, Brod. ? *St. Juan*.
 — *tuberculatum*, Gray. 39, 91. *S. Juan*.
Columbella (gibbosa) = strombiformis, Lam. 102. Mazatlan.
Buccinum ? 33*. *San Juan*.
Fusus ambustus, Gld. [exactly resembles the Mediterranean sp.] 128. ? Mazatl.
 — *pallidus*, Gray. 119. *Guaymas*.
Pyrula patula, Br. & Sow. 69. Mazatlan.
 — *lignaria*, Gray. 119. *Guaymas*.
Murex bicolor, Val. 15. *La Paz*.
 — *brassica*, Lam. 76. Mazatlan.
 — *plicatus*, Sow. 109. ? *San Juan*.

Collected by Major Rich.

Pholas ovoidea, Gld. Upper Cal.
 — *Californica*, Conr. Upper Cal.
Sanguinolaria Nuttalli, Conr. *San Pedro*.
Solecurtus subteres, Conr. Monterey.
Tellina secta, Conr. Monterey.
 — *nasuta*, Conr. Lower Cal.
 — *Cumingii*, Sow. ?—
 — *Bodegensis*, Hds. Monterey.
Tellidora Burneti, Brod. Lower Cal.
Cumingia Californica, Conr. Monterey.
Lutraria ? Lower Cal.
Platygodon cancellata, Conr. Upper Cal.
Saxidomus Nuttalli, Conr. ?—
Saxicava carditoides, Conr. Lower Cal.
 — *lamellifera*, Conr. Upper Cal.
Petricola robusta, Sow. ?—
Dosinia gigantea, Sow. Gulf Calif.
Dione chionea, Mke. Lower Cal.
 — *rosea*, Brod. = *lepada*, Chen. Lower California.
Trigona planulata, Sow. Lower Cal.
 — *crassatelloides*, Conr. Lower Cal.
 — *corbicula*, Gld. = *radiata*, Sow. Lower Calif.
 — *argentina*, Sow. Upper California[?].
Venus amathusia, Phil. Lower Cal.
 — *gnidia*, Brod. Lower Cal.
 — *straminea*, Conr. Lower Cal.
 — *Californiensis*, Brod., not Conr. Lower Cal. & *San Pedro*.
Chama rugosa. Lower Cal.
 — *echinata*. Lower Cal.
Cardita affinis, Gld. = *Californica*, Desh. Lower Cal.
Cardium Panamense, Sow. Lower Cal.
 — *californiense*, Conr. Upper Cal.
 — *consors*, Br. & Low. Lower Cal.
Lucina “? *bella* (see *tigrina*).” Lower Cal.
 — *Californica*. Lower Cal.

Alasmodon falcata, Gld. Upper Cal.
Mytilus Californianus, Conr. Upper Cal.
 — *glomeratus*, Gld. *San Francisco*.
Modiola flabellum, Gld. ?—
 — *divaricata*, Gld. ? = *Crenella coarctata*, Dkr. Upper Cal. [?]
Lithophagus falcatus, Gld. Upper Cal.
 — ? *cinnamomea*. ?—
Arca grandis, Sow. Lower Cal.
 — *formosa*. Lower Cal.
 — *tuberculosa*, Sow. Lower Cal.
 — *multicostata*, Sow. Lower Cal.
 — *reversa*, Gray = *hemicardium*, Koch. Lower Cal.
 — (large rhomboid), probably *grandis*, var. Gulf Cal.
Perna ? *Californica*, Conr. Lower Cal. [?]
Pecten ventricosus, Sow. Lower Cal.
 — *latiauritus*, Conr. + *monotimeris*, Conr. Upper Cal.
 — *nodosus*. Lower Cal.
Lima tetrica, Gld. Lower Cal.
Spondylus “*pictorum*, Chem.” Lower Cal.
Placunanomia macroschisma, Desh. Monterey.
Bulla nebulosa, Gld. Lower Cal.
Bulimus vesicalis, Gld. (probably young, Cuming). Lower Cal.
 — *excelsus*, Gld. Lower Cal.
Helix Californiensis, Lea. Upper Cal.
Scurria mitra, Esch. & Less. Upper Cal.
Fissurella virescens, Sow. Upper Cal. [?]
 — *crenulata*, Sow. Monterey.
Pomaulax undosus, Wood. Upper Cal.
Trochus mæstus. Lower Cal.
 — *filosus*. Upper Cal.
 — *dolarius*. Upper Cal.
 — *virgineus*. Upper Cal.

Trochus ater, Less. [=] *gallina* Up. Cal.
Trochiscus Norrisii, Sow. Upper Cal.
Uvanilla olivacea, Wood. Lower Cal.
Neritina picta, Sow. Lower Cal.
Crucibulum spinosum, Sow. San Pedro,
 Lower Cal.
 — *tenuis*, Brod. = *spinosum*, var. Lower
 Cal.
 — *rude*, Brod. Lower Cal.
 — *dentatum*, Mke. Lower Cal.
 — *imbricatum* [= *cujus*]. ?—
Calyptraea (like *equestris*), probably *ce-
 pacea*. Lower Cal.
Galerus conicus, Brod. ?—
 — *mammillaris*, Brod. ?—
Crepidula onyx, Sow. Lower Cal.
 — *excavata*, Brod. Lower Cal.
 — *aculeata* (teste Gld.). Lower Cal.
 — (like) *dilatata*. Lower Cal.
 — ? *squama*. Lower Cal.
Litorina planaxis, Nutt. Upper Cal.
Planaxis planicostata. ?—
Cypraea spadicea, Gray. Monterey.
 — *zonata*, Gray = *Sowerbyi*, Rve.
 Lower Cal.
 — *arabica*. Lower Cal.
Cancellaria obesa, Sow., ? = *urceolata*,
 Hds. La Paz.
 — *solida*, Sow. La Paz.
 — *cassidiformis*, Sow. La Paz.
 — *candida*, Sow. Gulf Cal.
 — *goniostoma*, Sow. Gulf Cal.
Strombus gracilior, Sow. Lower Cal.
 — *granulatus*, Sow. Lower Cal.
Terebra variegata, Gray. (Guaymas, Mus.
 Cum.) Lower Cal.
Pleurotoma maculosa, Sow. Lower Cal.

Conus trochulus, Rve. Upper Cal.
 — *interruptus*, Brod. & Sow. Lower
 California.
Solarium quadriceps, Hds. Lower Cal.
Natica Chemnitzii, Phil. Lower Cal.
 — *bifasciata*. Lower Cal.
Mitra lens, Wood. Lower Cal.
 — *inermis*. ?—
Cassis coarctata, Sow. Lower Cal.
Leucozonia cingulata, Sow. Lower Cal.
Ranella ventricosa. ?—
Triton Chemnitzii, Gld. (*lapsu*) = *sipho-
 natus*, Rve. Lower Cal.
Tritonidea pagodus, Rve. Lower Cal.
Nassa luteostoma, Brod. Lower Cal.
Oliva splendida, Sow. Lower Cal.
 — *testacea*, Lam. Lower Cal.
 — *bipectata*, Sow. Lower Cal.
 — *volutella*, Lam. Lower Cal.
 — ? *tigrina*. Lower Cal.
Columbella fuscata, Sow. Lower Cal.
 — *coniformis*. Lower Cal.
Purpura columellaris, Lam. Lower Cal.
 — *biserialis*, Blainv. Lower Cal.
 — *emarginata*, Desh. Lower Cal.
 — *kiosquiformis*, Ducl. ?—
 — *muricata*, Gray. Lower Cal.
Monoceros punctatum, Sow. Upper Cal.
 — *brevidentatum*, Wood. ?—
 — *cymatum*, Sow. ?—
 — *crassilabrum*, Sow. Upper Cal. [?]
 — *unicarinatum*. ?—
 — *globulus*, [= *cujus*]. ?—
Vitularia salebrosa, King = *vitulina*, Gray.
 Lower Cal.
Murex bicolor, Val. Lower Cal.
 — *foliatus* = *pinniger*, Brod. ?—

48. The first important contribution to the local fauna of the Gulf of California was made by Dr. Menke; who, having received from his friend M. Heinrich Melchers, of Bremen, a number of shells which he had himself collected at Mazatlan, proceeded to catalogue and describe them in the "Zeitschrift für Malacozoologie," Dec. 1847, pp. 177–191. Here, for the first time in the history of West N. American Mollusca, we have an attempt to present a complete geographical list, of known as well as supposed new species, collected in a particular district. For the example thus set, and for the record of the labours of M. Melchers, Dr. Menke deserves well of science; but it does not appear that his identification of species is always sound; nor is it in every case easy to make out his descriptions of new forms. The paper is entitled "Verzeichniss einer Sendung von Conchylien von Mazatlan, mit einigen Kritischen Bemerkungen," and contains notes on the following species:—

- | | |
|--|---|
| No.
1. <i>Siphonaria lecanium</i> , Phil.
2. <i>Litorina aspera</i> , Phil.
3. <i>Turritella imbricata</i> , [Mke. quasi]
Lam. = <i>T. tigrina</i> , Kien. | No.
4. <i>Vermetus glomeratus</i> , [Mke. quasi]
(Rouss.), Linn. ? = <i>Bivonia contorta</i> .
5. <i>Natica iostoma</i> , Mke. "Resembles
<i>N. canrena</i> ." ? = <i>N. maroccana</i> , var. |
|--|---|

- No. 6. *Natica maroccana*, Chemn. (Koch) = *N. Chemnitzii*, Pfr.
 7. *Nerita multijugis*, Mke. = *N. scabricosta*, Lam., teste Mke. postea.
 8. *Turbo fluctuosus*, Wood.
 9. *Solarium granulatum*, [Mke. quasi] Lam.
 10. *Cerithium ocellatum*, [Mke. quasi] Brug. = *C. stercusmuscarum*, Val.
 11. *Buccinum sanguinolentum*, Ducl. = *Polia hæmastoma*, Gray.
 12. — *gemmulatum*, Rve. non Lam. nec Kien. = *Pisania gemmata*.
 13. — *gilvum*, Mke. Appears to be an *Anachis*, possibly *coronata*.
 14. *Terebra fulgurata*, Phil.
 15. *Purpura hæmastoma*, [Mke. quasi] Lam. = *P. biserialis*, Blainv. var.
 16. — *bicostalis*, Rve. = *P. biserialis*, Blainv.
 17. — *atromarginata*, "Blainv., Desh. = *P. cancellata*, Kien." (New Hebrides.)
 18. *Columbella strombiformis*, Lam.
 19. — *major*, Sow.
 20. — *harpeiformis*, Sow.
 21. *Murex brassica*, Lam. = *M. ducalis*, Brod.
 22. *Ficula decussata* = *Pyrula ventricosa*, Sow.
 23. *Conus achatinus*, [Mke. quasi] Brug. = *C. purpureus* or *regalitis*.
 24. *Oliva tergina*, Ducl.
 25. — *zonalis*, Lam.
 26. *Erato columbella*, Mke.
 27. *Cypræa arabicula*, Lam.
 28. — *Sowerbyi*, "Rve. = *C. zonata*, Gray, not Chemn."
 29. — *sanguinea*, Gray.
 30. — *Solandri*, Gray.
 31. — *pustulata*, Lam.
 32. *Crepidula costata*, [Mke. quasi] Sow. = *C. aculeata*, var.
 33. — *hepatica*, [Mke. quasi] Desh. = *C. incurva*, Brod., not *C. hepatica*, C. B. Ad.
 34. — *uncata*, Mke. = *C. adunca*, Sow.
- No. 35. *Calyptræa dentata*, Mke. " = *C. rugosa*, Less. in Guér. Mag. non Desh. = *C. extintorium*, Sow. non Lam." = *Crucibulum imbricatum*, var. B. M. Maz. Cat. p. 287. no. 343.
 36. — *imbricata*, Sow.
 37. — *Lamarckii*, Desh. (Australia).
 38. *Hipponyx australis*, [Mke. quasi] Lam. = *H. serratus*.
 39. *Fissurella pica*, Sow.
 40. — *chlorotrema*, Mke. = *F. rugosa*, Sow.
 41. — *humilis*, Mke. = *F. rugosa*, var.
 42. — *gemmata*, Mke. ? = *F. alba*, jun.
 43. *Acmaea mitella*, Mke.
 44. *Pecten adpersus*, Sow. (Tumbez, Peru.)
 45. *Avicula Atlantica*, [Mke. quasi] Lam. = *A. sterna*, Gld.
 46. *Arca* ? *ovata*, Rve.
 47. *Mytilus* = *M. spatula*, Mke. in Zeit. f. Mal. 1848, p. 2. Possibly = *Modiola capax*, jun.
 48. *Modiola* = *M. semilævis*, Mke. in Zeit. f. Mal. 1848, p. 5.
 49. *Cardita affinis*, [Mke. quasi] Sow. = *C. Californica*.
 50. *Cardium muricatum*, [Mke. quasi] Linn. ? = *C. radula*, Brod. & Sow.
 51. — *procerum*, Sow.
 52. *Donax* ? *compressus*, [Mke. quasi] Lam. ? = *D. assimilis*, Hanl.
 53. *Tellina cicercula*, Phil.
 54. *Cytherea corbicula* [Mke. quasi] Lam. = *Trigona radiata*.
 55. — *argentina*, Sow.
 56. — *semifulva*, Mke. ? = *Trigona radiata*, var.
 57. — *chionæa*, Mke. = *Dionesqualida*, Sow. & *biradiata*, Gray. ? + *D. elegans*, Koch.
 58. *Venus cancellata*, [Mke. quasi] Linn. ? = *Chione amathusia* : but v. B. M. Maz. Cat. p. 80. no. 113.
 59. *Corbula* ? *ustulata*, Rve. One rubbed valve.

Of the 45 species here quoted from other authors, the following 15 do not belong to the fauna:—Nos. 3, 4, 9, 10, 15, 17, 23, 32, 37, 38, 45, 50, 52, 54, 58. It is fair to suppose, either that the writer has erred in his diagnoses, or that shells have been imported. In most cases, as very similar species really are found at Mazatlan, it is natural to adopt the former alternative. In other cases, as in nos. 20 and 44, the species inhabit the coast, but their presence at Mazatlan wants the confirmation of the Reigen collection. Of the shells intended by nos. 17, 28, 37, 46, 48, & 59, no information can be given. Of the entire 59 species, accepting the altered nomenclature, which would reduce the number to 55, 40 are certainly, and

five probably, members of the fauna: of the remaining ten, it is unsafe to hazard a conjecture.

The above analysis has been attempted, partly in order to show the difficulties attendant upon all inquiries of this kind. Here is a collection made on a single spot by a competent gentleman*, and described by a conchologist of acknowledged superiority, the editor of one of the very few strictly Conchological Journals; and yet only 32 can be accepted in the state in which they are presented, the remaining 27 containing errors either of collection or of description. If such is the work of a master, the readers of this Report will accept with due caution the labours of a mere student.

49. But if there is so much doubt attaching to Menke's first list, there is still more in the principal list which follows. In the *Zeit. f. Mal.* 1850, no. 11, Dr. Menke informs us that since his last paper, M. Melchers had again visited Mazatlan, and had investigated the shells of that region with great zeal and perseverance, and no little sacrifice of money. He returned to Bremen in the summer of 1849, and generously presented Dr. Menke with a selection in the autumn of 1850. So far all is extremely satisfactory; but he goes on to state that he received at the same time, from the same ship, *a box obtained at Mazatlan by purchase*. This fact invalidates the soundness of all that follows; except in those few instances in which we are informed that M. Melchers collected the shells himself. The following list therefore must be received with great caution, except where the shells are confirmed by other authority. Occasionally Dr. Menke gives particulars as to the number of individuals from which he describes; as when he tells us, p. 188, that, as he has had an opportunity of examining no fewer than eight specimens of *Murex ambiguus*, Rve., he can speak with authority as to its being distinct from *M. nigritus*, Phil. If he had examined the many hundreds in the Reigen collection, he would probably have come to a different conclusion. The second (mixed) list is as follows:—

1850, pp. 161-173.

1. *Bulla Adamsi*, Mke.
2. — *nebulosa*, Gld.
3. — (*Tornatina*) *gracilis*, [Mke. quasi] A. Ad. = ? *B. infrequens*, C. B. Ad.
4. *Bulinus zebra*, Desh.
5. *Planorbis tenagophilus*, [Mke. q.] D'Orb. = *P. tumens*, Cpr.
6. *Physa Peruviana*, [Mke. q.] Gray, = *Ph. aurantia*, Cpr.
7. *Litorina fasciata*, Gray.
8. — *aspera*, Phil.
9. — *modesta*, [Mke. q.] Phil. ? = *L. conspersa*, Phil. var.
10. *Turritella tigrina*, Kien. " = No. 3 of first list."
11. — *goniostoma*, Val.
12. — *Hookeri*, [Mke. q.] Rve.
13. *Vermetus Panamensis*, Rouss. The figure quoted represents *Le Vermet* of Adanson. The name

has not been found. ? = *Bivonia contorta*, var.

14. *Vermetus glomeratus*, [Mke. q.] Rous. ? = *Bivonia contorta*, Cpr.
15. *Natica Récluziana*, Desh.
16. — *glaucia*, [?] Humb. = *N. patula*, Sow.
17. — *maroccana*, (Chemn.) Koch.
18. — *ovum*, Mke.
19. *Neritina cassiculum*, Sow.
20. — *picta*, Sow.
21. *Nerita ornata*, Sow. " = *N. multi-jugis*, Mke." = *N. scabriuscula*, Lam.
22. — *funiculata*, Mke. = *N. Bernhardi*, Récl.
23. *Planaxis acutus*, Mke. = *P. nigritella*, Forbes.
24. — *obsoletus*, Mke. = *P. nigritella*, var.
25. *Turbo fluctuosus*, Wood.
26. *Solarium granulatum*, [Mke. q.] Lam.

* As M. Melchers is quoted for a shell from Vera Cruz, on the Gulf of Mexico, *Zeit. f. Mal.* 1848, p. 3, it speaks much for his accuracy as a collector that no W. Indian species are quoted in Menke's lists, except such as have analogues on the Pacific coast, for which they have probably been mistaken.

27. *Euomphalus radiatus*, Mke. = *Trochus perspectiviunculus variegatus*, Chemn., ? = *Torinia v.* Lam.
 28. *Trochus (Calcar) olivaceus*, Wood.
 29. ——— *Melchersi*, Mke.
 30. ——— *stellaris*, [Mke. q.] Lam.
 31. ——— ? *minutus*, Chemn.
 32. ——— *versicolor*, Mke.
 33. ——— (*Monodonta*) *catenulatus*, Phil.
 34. ——— *ligulatus*, Mke.
 35. ——— *glomus*, [Mke. q.] Phil.
- 1850, pp. 177–190.
 36. *Scalaria crassilabris*, Sow.
 37. *Rissoa stricta*, Mke.
 38. *Cerithium (Potamides) Montagnei*, D'Orb.
 39. ——— *maculosum*, Kien.
 40. ——— *ocellatum*, [Mke. q.] Brug. = *C. stercusmuscarum*, Val.
 41. ——— *interruptum*, Mke.
 42. *Buccinum gemmatum*, Rve. " = *B. gemmulatum*, first list, No. 12."
 43. ——— *pristis*, Desh. = *serratum*, Dufr.
 44. ——— (*Nassa*) *luteostoma*, Kien.
 45. *Monoceros muricatus*, Brod.
 46. ——— *cingulatus*, Lam.
 47. *Purpura patula*, Lam.
 48. ——— *consul*, [Mke. q.] Lam. = *P. biserialis*, var.
 49. ——— *biserialis*, Blainv.
 50. ——— *bicostalis*, [Mke. q.?] Lam. = *P. biserialis*, var.
 51. *Cancellaria ovata*, [Mke. q.] Sow. ? = *C. urceolata*, Hds.
 52. ——— *cassidiformis*, Sow.
 53. ——— *goniostoma*, Lam.
 54. *Dolium dentatum*, Barnes, = *Malea ringens*, Swains.
 55. ——— *crassilabre*, (Mke.) Val. = *M. ringens*, var.
 = *Cassia ringens*, Swains., Bligh Cat. App. p. 4. 1822.
 = *Dolium dentatum*, Barnes, An. Lyc. N. Y. 1824.
 = *Buccinum ringens*, Wood, Suppl. 1828.
 = *Dolium personatum*, Mke. Syn. p. 62. 1830.
 = *Malea latilabris*, + *crassilabris*, Val. 1833.
 = *Dolium latilabre*, Kien. 1835.
 = *D. plicosum*, Mke. Zeit. f. M. p. 138. 1845.
 = *D. ringens*, Rve. 1848.
 = *Cadium dentatum* + *C. ringens*, H. & A. Ad. Gen. i. 197.
56. *Harpa crenata*, Gray, = *H. Rivoliana*, Less.
 57. *Cassis coarctata*, Wood.
58. *Cassis inflata*, (Shaw) Rve. = *C. granulosa*, Lam.
 59. ——— *abbreviata*, Lam.
 60. *Columbella harpaformis*, Sow. = *C. citharula*, Ducl.
 61. ——— *fuscata*, Sow.
 62. ——— *nasuta*, Mke.
 63. ——— *fulva*, Sow.
 64. ——— *Terpsichore*, [Mke. q.] Sow.
 65. *Murex messorius*, [Mke. q.] Sow.
 66. ——— *unidentatus*, [Mke. q.] Sow.
 67. ——— *ternispina*, [Mke. q.] Lam.
 68. ——— *salebrosus*, King.
 69. ——— *brassica*, Lam. = *M. ducalis*, Brod.
 70. ——— *bicolor*, Val. = *M. erythrostoma*, Swains.
 71. ——— *lappa*, Brod.
 72. ——— *dubius*, Sow. = *M. aculeatus*, Wood, not Lam.
 73. ——— *nigrita*, Phil.
 74. ——— *ambiguus*, Rve. = *nigritus*, var.
 75. *Ranella nana*, Sow.
 76. ——— *muriciformis*, Brod.
 77. ——— *anceps*, Lam. = *R. pyramidalis*, Brod.
 78. *Tritonium nodosum*, (Chemn.) Mke. = *Triton Chemnitzii*, Gray.
 79. ——— *lignarium*, Brod.
 80. ——— *scalariforme*, Brod.
- 1851, pp. 17–25.
 81. *Turbinella cæstus*, Brod.
 82. *Fasciolaria princeps*, Sow.
 83. *Ficula decussata*, Rve.
 84. *Pyrula patula*, Brod. & Sow.
 85. ——— *sub. ostrata*, Gray, = *Fusus lapillus*, Brod. & Sow.
 86. ——— *anomala*, Rve.
 87. *Fusus rheuma*, Mart. = *F. torheuma*, Desh.
 88. *Pleurotoma funiculata*, Val.
 89. ——— *maculosa*, Sow.
 90. ——— *incrassata*, Sow. = *P. Bottæ*, Val.
 91. ——— *Melchersi*, Mke.
 92. *Strombus galeatus*, Swains.
 93. ——— *granulatus*, Wood.
 94. ——— *lentiginosus*, Linn.
 95. ——— *gracilior*, Sow.
 96. *Conus princeps*, Linn.
 97. ——— *regularis*, Sow.
 98. ——— *puncticulatus*, Hwass.
 99. ——— *omaria*, Hwass.
 100. *Oliva porphyrea*, Lam.
 101. ——— *angulata*, Lam.
 102. ——— *Julietta*, Ducl. = *O. Pantherina*, Phil.
 103. ——— *venulata*, Lam.
 104. ——— *Melchersi*, Mke.

105. *Oliva undatella*, Lam.
 106. — *anazore*, Ducl.
 107. — *tergina*, Ducl.
 108. — *testacea*, Lam.
- 1851, pp. 33–38.
109. *Orula emarginata*, Sow.
 110. — *deflexa*, Sow.
 111. *Cypræa Arabica*, Linn.
 112. — *arabica*, Lam.
 113. — (*Trivia*) *pustulata*, Lam.
 114. — *sanguinea*, Gray.
 115. — *fusca*, Gray.
 116. — *subrostrata*, Gray.
 117. *Terebra variegata*, Gray.
 118. — *armillata*, [Mke. q.] Hinds.
 119. — *luctuosa*, Hinds.
 120. *Mitra lens*, Wood, = *M. Dupontii*, Kien.
 121. *Crepidula contorta*, [Mke. q.] Quoy & Gaim.
 122. — *costata*, [Mke. q.] Sow.
123. *Crepidula striolata*, Mke. = *C. nivea*, var.
 124. — *Goreensis*, Desh. ? = *C. nivea*, var.
 125. *Calyptræa* (*Trochatella*) *Lamarckii*, [Mke. q.] Desh.
 126. — *conica*, Brod.
 127. — (*Dyspotæa*) *spinosa*, Sow.
 128. — *cephacea*, Brod.
 129. *Hipponyx foliaceus*, [Mke. q.] Quoy & Gaim. ? = *H. serratus*.
 130. *Fissurella virescens*, Sow.
 131. — *viminea*, [Mke. q.] Rve. ? = *F. rugosa*, var.
 132. *Patella Mexicana*, Brod. & Sow.
 133. *Acmaea mutabilis*, Mke. ? = *fascicularis* + *mesoleuca*, pars.
 134. — *fascicularis*, Mke.
 135. — *mesoleuca*, Mke. = *Patella diaphana*, Rve. not Nutt.
 136. *Siphonaria denticulata*, [Mke. q.] Quoy & Gaim. Probably *S. lecanium*, var.

50. Among the many wasted opportunities of obtaining very valuable information on geographical distribution, must unfortunately be recorded the Surveying Voyages of the 'Herald' and 'Pandora,' by Capt. Kellett, R.N., C.B., and Lieut. Wood, R.N. The former of these gentlemen commanded the 'Starling' during the Sulphur Expedition. Their zeal for science is shown not only by the large number of fine and valuable shells which they brought back, but especially by the extreme liberality with which they have presented them to public museums wherever they thought that they could be made useful. The shells were deposited in the Museum of Practical Geology in Jermyn Street, London, then presided over by Prof. E. Forbes. He writes that "they were chiefly collected on the coast of Southern California, from San Diego to Magdalena, and the shores of Mazatlan." This is precisely the very district of all others on which we are in want of accurate information. San Diego belongs mainly to the Californian Province, Mazatlan to that of Panama; the question yet to be settled is, ? where and how do they separate. Here was an exploration in competent hands on the very *terra incognita* itself; and yet, alas! Prof. E. Forbes further states that "unfortunately the precise locality of many of the individual specimens had not been noted at the time; and a quantity of Polynesian shells mingled with them, have tended to render the value of the collection, as illustrative of distribution, less exact than it might have been." Such information as was accessible at the time was embodied by Prof. E. Forbes in two communications to the Zoological Society, 1850; the first on the Land Shells, collected during the Expedition, *Proc.* pp. 53–56; the second on the Marine Mollusca, pp. 270–274. The following abstract includes what may be supposed to relate to our present subject of inquiry.

- From Oregon, *Helix Townsendiana*, *H. Nuttalliana*, and *H. Columbiana*.
Helix Pandora, Forbes, p. 55. pl. 9. f. 3 *a*, *b*. Sta. Barbara, as per box label: San Juan del Fuoco, teste Forbes.
 — *Kellettii*, Fbs. p. 55. pl. 9. f. 2 *a*, *b*. Allied to *H. Californiensis*, Lea. Same locality.
 — *labyrinthus*, var. *sipunculata*, p. 53. pl. 9. f. 4 *a*, *b*. Panama.
 — *vellicata*, Forbes, p. 55. pl. 9. f. 1 *a*, *b*, *c*. "? Panama."
 — *aspersa*, marked Sta. Barbara; probably imported, p. 53.

Bulimus nux, *B. calvus*, *B. eschariferus*, *B. unifasciatus*, and *B. rugulosus*, from Chatham Is., Gelepagos, p. 54. Also, from the same island,
 — *Chemnitzoides*, Forbes, p. 55. pl. 9. f. 6 a, b: and
 — *Achatinellinus*, Forbes, p. 56. pl. 9. f. 5 a, b. (In text *Achatellinus*, err. typ.)
 — *fimbriatus*, Forbes, p. 56. pl. 9. f. 7 a, b. Box labeled Panama.
 — *alternatus*, Panama, p. 54.
Succinea cingulata, Forbes, p. 56. pl. 9. f. 8 a, b, "said to come from Mazatlan."

"Out of 307 species of shells collected by the voyagers, 217 are marine Gasteropoda, 1 is a Cephalopod, and 58 marine bivalves. The new species are all from the American shores. There are no products of deep-sea dredging. A few specimens of considerable interest were taken by the 'Herald' at Cape Krusenstern." The following species are described by Prof. Forbes:—

Page.	Plate.	Fig.	
271	11	1 a, b.	<i>Trochita spirata</i> , Forbes. Massaniello, Gulf of California.
271	11	9	<i>Trochus castaneus</i> , Nutt. MS. Sta. Barbara, &c. Nuttall.
271	11	8 a, b.	— (<i>Monodonta</i>) <i>galina</i> , Forbes. "Probably from the Mazatlan coast." San Diego, Lieut. Green.
271	11	7 a, b.	— <i>aureotinctus</i> , Forbes. "With the last." San Diego, Lieut. Green. = <i>T. cateniferus</i> , Potiez, teste Gould.
272	11	11 a, b.	— (<i>Margarita</i>) <i>purpuratus</i> , Forbes, "? W. coast of N. A."
272	11	10 a, b.	— <i>Hilli</i> , Forbes. "? N.W. coast of N. A."
272	11	2 a, b, c.	<i>Natica Pritchardi</i> , Forbes. Mazatlan, abundant. = <i>N. Chemnitzii</i> , Pfr. non Recl. = <i>N. maroccana</i> , var. teste Koch.
273	11	6	<i>Planaxis nigritella</i> , Forbes. "Straits of San Juan del Fuaco." = <i>P. acuta</i> + <i>P. obsoleta</i> , Mke. As this species is found in extreme profusion at Mazatlan, and was not found by Mr. Nuttall, it is in the highest degree improbable that it should occur in abundance so far north in Oregon. It was probably from San Juan in the Gulf of California.
273	11	12	<i>Purpura analoga</i> , Forbes. Probably from the Oregon district.
274	...	...	— <i>decemcostata</i> , Midd., var. approaching <i>P. Freycinetii</i> .
274	...	...	— <i>planospira</i> , <i>columellaris</i> , and <i>Carolensis</i> ; "probably from the Galapagos." The two latter occur also at Mazatlan.
274	9	10	<i>Fusus Kelletii</i> , Forbes. One sp. from the Californian coast.
274	...	...	— <i>Oregonensis</i> . Californian coast.
274	...	...	— <i>salebrosus</i> . Mazatlan.

The types of the described species, and numerous most beautiful and interesting specimens have been presented to the British Museum. The remainder may be seen by students in the drawers of the Mus. Pract. Geol.: but the condition of the labels is not such that any dependence can be placed on them unless confirmed from other sources. In the only list that remains, it is said that there were the following shells from the Galapagos: 18. Eight species of small shells; 19. *Nerita*; 20–22. *Purpura*; 23–25. *Buccina*; 26. *Arca*; 27. *Bulimus*. Of the bulk of the collection, 95 species are known from other sources to occur at Mazatlan, and 35 species have been taken in other parts of the province between Mazatlan and Panama. Of the remainder, several are known to belong to Ecuador and Peru, and some, as *Pomaulax undosus* and *Acmaea Oregona*, to the Californian coast. But so large a number, even of those placed with the Mazatlan shells, and perhaps obtained by commerce from that spot, are known to be inhabitants of the Pacific Islands and the East Indies, that a list of them would be entirely useless for our present object.

Among the specimens collected by Messrs. Kellett and Wood during their voyage, which have been by them presented to the British Museum, have been observed the following species:—

Cardium Nuttalli. California.
Trigonia radiata, var. *Hindsii*.
Modiola capax. "S. America." [?]
Pinna rudis. Gulf of California.

Fissurella ornata.
Haliotis Cracherodii, Leach.
Purpura Carolensis. Is. Plata.
Murex foliatus. San Juan de Fuaco.

51. But the largest collection ever brought to Europe from one locality (with the single exception of Mr. Cuming's stores) was made at Mazatlan during the years 1848-50 by a Belgian gentleman of the name of Frederick Reigen. He did not live to enjoy the fruits of his almost unparalleled labours; and after his death in 1850, the collection was sent for sale, partly to Messrs. F. de Lizardi and Co. at Liverpool, and partly to Havre. The Liverpool portion measured about 14 tons of 40 cubic feet each. It was bought by Mr. G. Hulse, wholesale naturalist in Dale Street; but before it passed into his hands, it received such an examination as time allowed from Mr. F. Archer, in whose collection, and in that of the Royal Institution, the first unmixed fruits will be found. Unfortunately the geographical value of these selections is greatly injured by trusting to memory and loose tickets; and the localities of the Institution specimens have simply been added from the monographs, as 'Galapagos,' 'Panama,' 'St. Elena,' &c. Mr. Hulse fortunately deposited the bulk of the collection under lock and key in a chamber by itself; but to save room, he immediately disposed of most of the large shells, such as *Spondylus calcifer*, *Patella Mexicana*, *Strombus galea*, and the *Pinnae*, to a publican near Manchester, where they may be seen in his "Museum." Circumstances enabled me to make a searching examination of Mr. Hulse's stores, and to form a geographical collection from their contents*. Finding that in a small manufacturing town this could not be made available for the purposes of science, I acceded to the request of Dr. Gray that it should be deposited in the British Museum; it being stipulated (1) that I should be allowed to arrange it in its permanent abode, where it should remain intact as a separate collection; and (2) that a descriptive catalogue should be published of its contents. The duty of preparing this was entrusted to me by Dr. Gray. The work is already written, and most of it printed. When completed, it will be found to contain descriptions of 222 new species; in addition to several which had been previously described from the same collection in the 'Proc. Zool. Soc.' and other works. Numerous details are added on species already known, especially on the variations of growth, geographical range, frequency, and synonymy.

Being desirous of making the permanent collection of the British Museum as complete as possible, and finding that the original stores were in danger of being dispersed, and so rendered useless for science, I obtained possession of the remainder of the vast collection, and subjected it to a renewed and more rigid scrutiny. There will, therefore, be preserved in the B.M. drawers, not only the type specimens of the described species; but what will perhaps be of more service to inland students, because less often accessible, large series illustrating particular species, and displaying both their normal and their abnormal variations. Thus, of *Donax punctatostriatus* will be found 192; of *D. Conradi* [+ *culter*, Hanl. + *contusus*, Rve. + *Californicus*, Desh.], 292; of *Anomalocardia subrugosa*, 130; of *Venus gnidia*, 59; of *Anomia lampe*, 97; of *Neritina picta*, 607; and of *Acmæa mesoleuca*, 301 specimens; every one of which exhibits an appreciable difference from its neighbours. The latter

* Of this collection, amounting then to 440 species, an account was laid before the British Association at Liverpool: v. Reports, 1854, p. 107. The list was examined by Prof. Forbes, and much assistance obtained from his experience. That assistance was promised during the course of the present inquiry, and would have prevented many of the errors attendant on it; but within a week after he had written to recommend the transfer of the collection to the British Museum, he had passed to the scenes where human aid is no longer needed, and where human errors find no place.

series was obtained by repeated processes of elimination, from the examination of about 11,000 specimens. The whole number of shells passed under review probably exceeded 100,000. The following was found to be the most satisfactory plan for the determination of specific limits:—(1) to spread out the entire mass in somewhat of order before the view, in order that the general *idea* of the species (so to speak) might be received by the mind; (2) to examine the specimens one by one, in comparison with an ordinary shell selected as a standard, putting to one side all that for any cause attracted attention; (3) from the hundreds thus selected out of the thousands, or the scores out of the hundreds, to arrange series according to observed differences; (4) to subject these to a rigid scrutiny with each other and with neighbouring species; (5) to make a selection that should exhibit not extremes only, but intermediate grades; and (6) to write the description while the result of the previous processes was fresh in the recollection. No observations, indeed, can compare for accuracy with those made on living animals in their native haunts; but the next best process is the examination of large numbers of specimens, such as the almost exhaustive diligence of M. Reigen has placed at our disposal. The process may require considerable time and no small amount of patience; but results thus obtained are far more satisfactory than the plan too often followed, of picking out a few specimens of leading forms, which alone are available to naturalists for description. So marvelous indeed are the variations of growth thus traced to the same specific source, that we may well accept with doubt species that are constituted from very limited materials. This caution is by no means to be overlooked in using the very catalogue in question; as the only materials for a knowledge of the small species (which amount to no fewer than 314 out of 691) were the dirt obtained from the washings of the shells, which had most fortunately been sent “in the rough;” and the fragments obtained in ransacking the backs of a few *Spondyli*, which were most obligingly placed at my disposal by R. D. Darbshire, Esq., of Manchester, who had succeeded in rescuing them from the publican’s “museum.”*

It would of course have been far more satisfactory, for the purposes of science, had the collection never passed through a dealer’s hands. The fortunate circumstance, however, of its size and value requiring a room to be emptied and kept locked for its custody, has prevented the chances of error which would otherwise have crept in. No species are inserted in the catalogue but what were obtained from the boxes in this room, and from the large shells about the parasites of which there can be no mistake; except *Ficula decussata*, of which Mr. Hanley distinctly remembers the appearance of a very few specimens in the Havre collection. This, which, though comparatively small, filled twenty-eight boxes, after lying some time in France without a purchaser, was in the main sent to London, and disposed of in lots at the auctions, mixed with other shells, and without any knowledge being communicated as to their history. They have been freely distributed as though from Panama; and several of them appear in the British Museum, labelled “Australia, presented by — Metcalf, Esq.” Several freshwater shells, *Cyrenæ* and *Ampullariæ*, are believed to have come from this source; but there was no trace of them in the Liverpool collection. In general, the two sets so far agreed as to make it probable that the species were divided. Messrs. Lizardi received a list, in which the exact localities of all the shells

* I am under the greatest obligations to Mr. Darbshire for his valuable aid from the commencement of the work. We alone were admitted by Mr. Hulse into his secret chamber, filled with the unmixed spoils of the Mazatlan waters; nor should I have ventured to pursue this inquiry, which would have been conducted far better under his auspices, had not professional engagements entirely prevented his devoting the time necessary for such a purpose.

were recorded; this invaluable document, however, was thrown to one side as useless, and has not since been found.

The best evidence of the authenticity of the collection is in the shells themselves. These were, with very few exceptions, taken alive, and treated with evident care. Every single bivalve was separately wrapped up and ticketed; the mouths of the univalves were papered to preserve the opercula; and in many of the smaller species the animal was not extracted. The absence, from so vast a collection, of attractive shells known to be found in neighbouring places, such as *Oliva porphyria*, *Terebra variegata*, *Malea ringens*, *Cassis coarctata*, *Pectens* and *Pectunculi*, generally seen in collections from "that coast," shows that M. Reigen made little use even of the facilities of the coasting trade to extend his stores. Nor are there to be seen the Pacific Strombs, Cowries, *Terebræ*, &c., some of which even Menke allows to appear in his catalogue. In one respect a town of limited trade is more favourably situated for scientific purposes than a port of extensive commerce. Singapore, the Sandwich Is., Acapulco, &c., to say nothing of places on our own coast, are well known to be "hotbeds of spurious species." But among the many myriads in the Liverpool collection, not a dozen individual shells were found which can fairly be set down as strangers. The principal of these are—

Arca fusca (living), which is quoted from the West Indies, and may linger in the Gulf Seas; or it may have come from the East Indies on a ship bottom.

Conus arenatus. One very rubbed specimen; probably from ballast.

Crepidula Peruviana. Two worn specimens; probably from ballast.

Fissurella Barbadosensis. One young fresh sp.; probably brought over on a pebble.

With regard to *Lucina tigerrina* and *Macra fragilis*, of each of which one fresh specimen was sent papered and ticketed with nearly related shells, we have no right to deny their authenticity merely because they oppose our theories; as unexpected facts are continually making their appearance, to the confusion of the mere systematizer and the corresponding delight of searchers after truth. All shells of this class are included in the list, in order that persons may see the bad as well as the good, and judge of its authority accordingly. No attempt has been made (except with the small shells) to state the number of specimens, because of the abstractions which had previously been made by purchasers; but the following notes will give a tolerably correct idea of their comparative frequency, after these abstractions had been deducted.

e. r. extremely rare; under a score.

v. r. very rare; under a hundred.

r. rare; under two hundred.

n. c. not common; or } under 300.

n. u. not uncommon; }

c. common; up to 400 or 500.

a. abundant; 600 or 700.

e. c. extremely common; 1000.

e. a. extremely abundant; more than 1000.

List of the Reigen Collection of Mazatlan Mollusca.

No.	Name.	Freq.	Other Localities.
Class BRYOZOA.			
Membraniporidae.			
1	Membranipora denticulata, Busk, n. s.	r.	? Persian Gulf.
2	— Gothica, Rylands, MS., n. s.	r.	
3	Lepralia atrofusca, Rylands, MS., n. s.	r.	Britain.
4	— trispinosa, Johnst.	1 sp.	
5	— Mazatlanica, Busk, n. s.	r.	
6	— rostrata, Busk, n. s.	r.	

No.	Name.	Freq.	Other Localities.
7	<i>Lepralia marginipora</i> , <i>Reuss</i>	r.	Fossil tertiary, Vienna.
8	— <i>hippocrepis</i> , <i>Busk</i> , n. s.	r.	
9	— <i>humilis</i> , <i>Busk</i> , n. s.	r.	
10	— <i>adpressa</i> , <i>Busk</i>	n. u.	
677	—, sp. ind.	v. r.	Chiloe, 96 fms., <i>Darwin</i> .
<i>Celleporidæ.</i>			
11	<i>Cellepora papillæformis</i> , <i>Busk</i> , n. s.	r.	
12	— <i>cyclostoma</i> , <i>Busk</i> , n. s.	r.	
678	<i>Cellepora</i> , sp. ind., resembling <i>pumicosa</i> , <i>Linn.</i>	v. r.	
<i>Discoporiidæ.</i>			
13	<i>Defrancia intricata</i> , <i>Busk</i> , n. s.	r.	
679	<i>Tubulipora</i> , sp. ind.	v. r.	
Class TUNICATA.			
Unknown.			
Cl. PALLIOBRANCHIATA, <i>Blain.</i>			
14	<i>Discina Cumingii</i> , <i>Brod.</i>	r.	Payta and St. Elena; Panama.
Class LAMELLIBRANCHIATA.			
<i>Pholadidæ.</i>			
15	<i>Pholadidea melanura</i> , <i>Sow.</i>	e. r.	Monte Christi.
16	— ? <i>curta</i> , <i>Sow.</i>	2 sp.	Veragua.
17	<i>Parapholas calva</i> , <i>Gray</i> , <i>MS.</i>	n. u.	Panama.
18	— <i>acuminata</i> , <i>Sow.</i>	n. u.	Panama.
19	<i>Martesia intercalata</i> , n. s.	2 sp.	
20	(Fragment) somewhat resembling <i>Panopæa</i> . Perhaps <i>Corbula tenuis</i> .	1	
<i>Gastrochænidæ.</i>			
21	<i>Gastrochæna truncata</i> , <i>Sow.</i>	n. u.	Panama, West Indies.
22	— <i>ovata</i> , <i>Sow.</i>	v. r.	Pan., Is. Perico, West Indies.
<i>Saxicavidæ.</i>			
23	<i>Saxicava arctica</i> , <i>Linn.</i>	v. r.	ubiquitous, p. 17; Fossil, Crag.
<i>Petricolidæ.</i>			
24	<i>Petricola robusta</i> , <i>Sow.</i>	n. u.	Panama, Island of Muerte.
	= <i>P. bulbosa</i> , Gld. = <i>P. sinuosa</i> , <i>Conr.</i>		
	? = <i>Choristodon typicum</i> , <i>Jonas</i>		West Indies.
25	— <i>ventricosa</i> , <i>Desh.</i>	e. r.	Gulf of California.
	? = <i>P. denticulata</i> , <i>Sow.</i>		Peru.
26	—, sp. ind.	2	
27	<i>Rupellaria lingua-felis</i> , n. s.	v. r.	
28	— <i>exarata</i> , n. s.	e. r.	
29	—, sp. ind.	1	
680	? <i>Narario scobina</i> , n. s.	e. r.	
220	—, sp. ind.	1	
<i>Myidæ.</i>			
681	? <i>Mya</i> , sp. ind.	1	
<i>Corbulidæ.</i>			
30	<i>Corbula bicarinata</i> , <i>Sow.</i>	e. r.	Pan., R. Llejos, Carac., St. Elena.
	? = <i>C. alba</i> , <i>Phil.</i>		
31	— <i>biradiata</i> , <i>Sow.</i>	1	Panama, Chiriqui, Caraccas.
32	— <i>pustulosa</i> , n. s.	2	Panama, St. Blas, 33 fms.
33	— ? <i>ovulata</i> , <i>Sow.</i>	1	Panama, Xipix., Montijo, Carac.
34	—, sp. ind. <i>a.</i> (allied to <i>C. scaphoides</i> , <i>Hds.</i>)	2	
682	—, sp. ind. <i>b.</i>	1	
35	<i>Sphænia fragilis</i> , n. s.	n. u.	
683	—, sp. ind.	1	
684	? —, sp. ind.	1	

No.	Name.	Freq.	Other Localities.
<i>Pandoridæ.</i>			
685	<i>Tyleria fragilis</i> , H. & A. Ad.	1	
36	<i>Lyonsia picta</i> , Sow.	e. r.	Is. Muerte, Vancouver's Island.
<i>Solecurtidæ.</i>			
37	<i>Solecurtus affinis</i> , C. B. Ad.	n. c.	Panama.
38	— <i>politus</i> , n. s.	4	
39	—, sp. ind.	1	
<i>Tellinidæ.</i>			
40	<i>Semele flavescens</i> , Gld.	c.	San Diego.
	= <i>S. proxima</i> , [quasi] C. B. Ad.		
41	— ? <i>venusta</i> , A. Ad.	2	W. Columbia.
42	<i>Cumingia lamellosa</i> , Sow.	v. r.	?Panama, Payta.
42b	—, ? var. <i>coarctata</i>	e. r.	Panama, Caraccas.
43	— <i>trigonularis</i> , Sow.	v. r.	Panama, St. Elena.
44	— <i>Californica</i> , Conr.	v. r.	Monterey, &c.
45	—, sp. ind. (like <i>C. striata</i>)	e. r.	
46	<i>Sanguinolaria miniata</i> , Gld.	e. r.	San Juan.
	= <i>S. purpurea</i> , Desh.		
47	<i>Tellina rufescens</i> , Chemn.	v. r.	Tumbez, West Indies.
	= <i>T. operculata</i> , Gmel.		
48	— <i>Broderipii</i> , Desh.	3	
49	— ?? <i>Mazatlanica</i> , Desh.	1	
50	— <i>Dombeyi</i> , Hanl.	2	Panama.
51	— <i>felix</i> , Hanl.	e. r.	Panama.
52	— <i>straminea</i> , Desh.	e. r.	
53	— <i>donacilla</i> , n. s.	1	
686	—, sp. ind. (c)	1	
54	— <i>punicea</i> , Born.	v. r.	Pan., Guayaquil, W. I., Xipix.
	= <i>Donax Martinicensis</i> , Lam. teste Gray.		
	= <i>Tellina alternata</i> , Sow. teste Gray.		
	= <i>T. angulosa</i> , Gmel. teste Desh.		
	= <i>T. simulans</i> , C. B. Ad.		
55	— <i>Cumingii</i> , Hanl.	1	Panama, Guacomayo.
56	— ? <i>burnea</i> , Hanl.	1	Tumbez.
57	? — <i>regularis</i> , n. s.	1	
58	— <i>lamellata</i> , n. s.	e. r.	
59	— ?? <i>puella</i> , C. B. Ad.	1	Panama.
60	— ?? <i>delicatula</i> , Desh.	1	
61	— <i>brevirostris</i> , Desh.	2	Central America.
62	— ? <i>denticulata</i> , Desh.	1	
63	—, sp. ind. (a)	1	
64	—, sp. ind. (b)	2	
65	<i>Tellidora Burneti</i> , Brod. & Sow.	n. u.	Salango, St. Elena.
	= <i>Lucina cristata</i> , Récl.		
66	<i>Strigilla carnaria</i> , Linn.	n. c.	W. I., ? Medit., Sta. Barbara.
	= <i>Lucina carnaria</i> , Lam.		
	= <i>Strigilla miniata</i> , Gld. = <i>S. fucata</i> , Gld.		
67	— <i>lenticula</i> , Phil.	1	
68	?? <i>Psammabia</i> , sp. ind.	1	
<i>Donacidæ.</i>			
69	<i>Iphigenia altior</i> , Sow.	v. c.	Gulf Nicoya; Tumbez, Panama.
70	— <i>laevigata</i> , ?	2	
71	<i>Donax carinatus</i> , Hanl.	v. r.	San Blas, Tumaco.
72	— <i>rostratus</i> , C. B. Ad.	1	Sta. Barbara, Panama.
	= <i>D. carinatus</i> , var. Hanl.		
	= <i>D. culminatus</i> , Cat. Prov.		
73	— <i>transversus</i> , Sow.	1	
74	— <i>assimilis</i> , Hanl.	1	Panama.

No.	Name.	Freq.	Other Localities.
75	<i>Donax punctatostriatus</i> , Hanl.	e. c.	Acapulco.
75b	— ? <i>punctatostriatus</i> , var. <i>cælatus</i>	v. r.	
76	— <i>Conradi</i> , Desh.	c.	
	+ <i>D. culter</i> , Hanl.		
	+ <i>D. Californicus</i> , Desh. non Contr.		
	+ <i>D. contusus</i> , Rve.		
	?+ <i>D. radiata</i> , Val.		
77	— <i>navicula</i> , Hanl.	n. u.	Gulf of Nicoya, Panama.
<i>Mactridæ.</i>			
78	<i>Mactra exoleta</i> , Gray.	n. u.	Panama, Guayaquil.
	= <i>Lutraria ventricosa</i> , Gld.		
	= <i>Mulinia ventricosa</i> , C. B. Ad.		
79	— <i>fragilis</i> , Chemn.	1	West Indies.
	= <i>M. ovalina</i> , Lam. teste Gray.		
	= <i>M. Braziliiana</i> , Lam. teste Desh.		
	= <i>M. oblonga</i> , Say, teste Rve.		
80	— (<i>Mulinia</i>) <i>angulata</i> , Gray	e. r.	S.W. Mexico, Panama.
	? = <i>M. donaciformis</i> , C. B. Ad.		
81	<i>Gnathodon mendicus</i> , Gld.	r.	
	= <i>Rangia trigona</i> , Petit.		
<i>Veneridæ.</i>			
82	? <i>Clementia gracillima</i> , n. s.	e. r.	
83	<i>Trigona radiata</i> , Sow.	v. c.	Salango, Xipix., Guayaq., Pan.
	= <i>Venus Solangensis</i> , D'Orb.		
	= <i>Trigona Byronensis</i> , Gray.		
	= <i>Cytherea corbicula</i> , Mke. (non Lam.)		
	+ <i>C. semifulva</i> , Mke.		
	+ <i>C. gracilior</i> , Sow.		
	+ <i>C. Hindsii</i> , Hanl.		
	?+ <i>C. intermedia</i> , Sow.		
84	— <i>humilis</i> , n. s.	r.	
85	— <i>argentina</i> , Sow.	v. r.	Gulf of Nicoya.
	= <i>Cytherea æqualatera</i> , Desh.		
86	— ?? <i>crassatelloides</i> , jun.	2 valv.	Upper California.
87	— <i>planulata</i> , Brod. & Sow.	n. c.	Pan., Salango: Chili, Coquimbo, D'Orb.
	+ <i>Cytherea undulata</i> , Sow.		
	= <i>Donax Lessoni</i> , Desh.		
	= <i>Cytherea mactroides</i> , Lam. teste Desh.		
88	<i>Dosinia ponderosa</i> , Gray	1	Payta.
	= <i>Cytherea gigantea</i> , Phil.		
	= <i>Venus cycloides</i> , D'Orb.		
89	— <i>Annæ</i> , Darb.	v. r.	
90	— <i>Dunkeri</i> , Phil.	v. c.	Panama, St. Elena, "Eastern Seas," Ad. & Rve.
	= <i>Artemis simplex</i> , Hanl.		
	= <i>Cytherea Pacifica</i> , Trosch.		
91	<i>Cyclina subquadrata</i> , Hanl.	3	St. Elena, Panama.
	= <i>Artemis saccata</i> , Gld.		
92	<i>Dione aurantia</i> , Hanl.	n. c.	S.W. Mex., Gulf Nicoya, Taboga.
	= <i>Cytherea aurantiaca</i> , Sow.		
93	— <i>chionæa</i> , Mke.	c.	San Blas, S.W. Mexico, La Paz, Taboga, St. Elena, ?Philippines, Swan River.
	+ <i>Cytherea squalida</i> , Sow.		
	+ <i>C. biradiata</i> , Gray.		
	?+ <i>C. elegans</i> , Koch.		
94	— <i>rosea</i> , Brod. & Sow.	c.	San Blas, Panama.
	= <i>Cytherea lepidia</i> , Chen.		
95	— <i>lupinaria</i> , Less.	e. c.	San Blas, Salango, Tumbes, Payta.
	= <i>D. lupanaria</i> , Gray.		
	= <i>Cytherea Dione</i> , var. Brod.		
	= <i>C. semilamellosa</i> , Gaud.		
96	— ? <i>vulnerata</i> , Brod.	1	Real Llejos.

No.	Name.	Freq.	Other Localities.
97	<i>Dione brevispinosa</i> , Sow.	1	
98	— <i>circinata</i> , Born. = <i>Venus Guineensis</i> , Gmel. = <i>Cytherea alternata</i> , Brod.	2	West Indies, Monte Christi.
99	— <i>concinna</i> , Sow. ?+ <i>Cytherea affinis</i> , Brod. ?+ <i>C. tortuosa</i> , Brod.	1	Panama.
100	<i>Cytherea petechialis</i> , Lam.	v. r.	Japan.
101	<i>Venus</i> (<i>Chione</i>) <i>gnidia</i> , Brod. & Sow.	e. c.	Payta, Panama, San Blas.
102	— <i>amathusia</i> , Phil. = <i>Chione gnidia</i> , var. Desh.	c.	S.W. Mexico, Panama.
103	— —, sp. ind. (a)	e. r.	
104	— — <i>distans</i> , Phil.	1	Panama.
105	— — <i>crenifera</i> , Sow. = <i>V. Portesiana</i> , D'Orb.	3	St. Elena, Payta.
106	— — ? <i>undatella</i> , Sow.	1	Island 3 Marias, G. of Calif.
107	— — <i>Columbiensis</i> , Sow.	e. c.	St. Elena, S.W. Mexico.
108	— —, sp. ind. (b)	3	
109	<i>Tapes histrionica</i> , Brod. & Sow. = <i>Chione histrionica</i> , Desh.	e. c.	Real Llejos, St. Elena.
110	— <i>grata</i> , Say = <i>Venus tricolor</i> , Sow. teste Desh. = <i>V. discors</i> , Sow. teste Jay. ? = <i>V. neglecta</i> , Phil. (non Gray).	3	S.W. Mex., Pan., St. Elena and Guacomayo, Puerto Portrero, Guaymas.
111	— <i>squamosa</i> , n. s.	3	
112	<i>Anomalocardia subrugosa</i> , Sow. = <i>Cytherea subsulcata</i> , Mke.	e. c.	S.W. Mexico, Panama, Peru.
113	— <i>subimbricata</i> , Sow.	e. r.	Acapulco, Puerto Portrero.
<i>Astartidæ.</i>			
114	<i>Circe margarita</i> , n. s.	v. r.	
115	— <i>subtrigona</i> , n. s.	v. r.	
116	<i>Gouldia Pacifica</i> , C. B. Ad.	v. r.	Panama.
117	— <i>varians</i> , n. s.	c.	
118	<i>Cardita Californica</i> , Desh. = <i>C. affinis</i> , Mke. non Sow.	e. r.	
119	<i>Venericardia</i> , sp. ind.	1	
120	<i>Trapezium</i> , sp. ind.	1	
<i>Chamidæ.</i>			
121	<i>Chama frondosa</i> , var. <i>Mexicana</i> + <i>Chama echinata</i> , fig. pars.	n. c.	Gulf of Tehuantepec.
121b	— ? <i>frondosa</i> , var. <i>fornicata</i> ? = <i>C. Buddiana</i> , C. B. Ad.	v. r.	
122	— <i>spinosa</i> , Sow.	4	Lord Hood's Island.
123	— <i>exogyra</i> , Conr.	2	San Diego.
<i>Cardiadæ.</i>			
124	<i>Cardium</i> (<i>Lævicardium</i>) <i>elatum</i> , Sow.	n. u.	Guaymas, San Diego.
125	— <i>procerum</i> , Sow. ?+ <i>C. laticostatum</i> , Sow.	c.	S.W. Mexico, Panama, Payta, Real Llejos.
126	— ? <i>senticosum</i> , Sow. = <i>C. rastrum</i> , Rve. ? = <i>C. muricatum</i> , Mke.	e. r.	Taboga, St. Elena.
127	— —, sp. ind. (a) (like <i>C. punctulatum</i>)	3	
128	— —, — (b) (like <i>C. triangulatum</i>)	1	
129	— —, — (c) (like <i>C. pseudofossile</i>)	1	
130	— —, — (d)	1	
131	— —, — (e)	2	
132	— —, — (f)	2	
133	— <i>alabastrum</i> , n. s.	e. r.	
687	— <i>rotundatum</i> , n. s.	1	

No.	Name.	Freq.	Other Localities.
134	<i>Cardium graniferum</i> , Brod. & Sow.	e. r.	Pan., Gulf Nicoya and Xipix.
135	—, sp. ind. (<i>g</i>), (<i>lucinoides</i> , <i>nom. prov.</i>) ...	1	
<i>Lucinidæ.</i>			
136	<i>Lucina</i> (<i>Codakia</i>) <i>tigerina</i> , Linn.	1	S.W. Mexico, West Indies.
137	— ?? <i>punctata</i> , Linn.	2	Panama.
138	— <i>annulata</i> , Rve.	1	
139	— ? <i>muricata</i> , Chemn.	1	
140	— <i>excavata</i> , n. s.	e. r.	
141	—, sp. ind. (<i>a</i>)	1	
142	— <i>pectinata</i> , n. s.	1	
143	— <i>cancellaris</i> , Phil.	e. r.	
144	— <i>Mazatlanica</i> , n. s.	c.	
145	— <i>prolongata</i> , n. s.	v. r.	
146	—, sp. ind. (<i>b</i>)	1	
147	— ? <i>eburnea</i> , Rve.	1	Panama, St. Elena.
148	— sp. ind. (<i>c</i>)	2	
149	? <i>Fimbria</i> , sp. ind.	2	
150	<i>Diplodonta semiaspera</i>	v. r.	West Indies.
	? = <i>Lucina calata</i> , Rve.		
	? = <i>L. semireticulata</i> , D'Orb.		
	Comp. <i>L. orbella</i> , Gld. ....	...	San Diego.
150b	—, var. <i>discrepans</i>	1	
151	— <i>obliqua</i> , Phil.	1	
152	? — <i>serricata</i> , Rve.	n. u.	
<i>Kelliadæ.</i>			
153	<i>Kellia suborbicularis</i> , Mont.	c. {	Atlantic: Britain, — Canaries:
154	<i>Lasea</i> ? <i>rubra</i> , Mont.	e. r.	Fossil Crag; Panama.
155	— <i>trigonalis</i> , n. s.	e. r.	Atlantic: ? ubiquitous.
156	? — <i>oblonga</i> , n. s.	1	
688	—, sp. ind.	1	
157	<i>Lepton Clementinum</i> , n. s.	2	
158	— <i>Dionæum</i> , n. s.	1	
159	— <i>umbonatum</i> , n. s.	2	
160	<i>Pythina sublævis</i> , n. s.	4	
161	<i>Montacuta elliptica</i> , n. s.	3	
162	? — <i>subquadrata</i> , n. s.	3	
163	—, sp. ind.	1	
<i>Cycladidæ.</i>			
164	<i>Cyrena olivacea</i> , n. s.	n. c.	
	= <i>C. Fontainei</i> , Desh. non D'Orb.		
165	— <i>Mexicana</i> , Brod. & Sow.	n. u.	
	Comp. <i>C. Floridana</i> , Conr.		
	Var. = <i>C. altilis</i> , Gld.		
<i>Unionidæ.</i>			
166	<i>Anodon ciconia</i> , Gld.	n. u.	
	Comp. <i>A. glauca</i> , Val.		
<i>Mytilidæ.</i>			
167	<i>Mytilus palliopunctatus</i> , Dkr.	c.	S.W. Mexico.
168	— <i>multiformis</i> , n. s.	c.	
169	<i>Septifer Cumingianus</i> , Récl.	e. r.	Panama.
170	<i>Modiola capax</i> , Conr.	r.	S. Diego, La Paz, Gal., S.W. Mex.
171	— <i>Braziliensis</i> , Chemn.	r.	Guiana, Venezuela, Bay Guaya-
	= <i>M. Guyanensis</i> , Lam.		quil, Panama.
	= <i>M. semifusca</i> , Sow. (not Lam.)		
171b	—, var. <i>mutabilis</i>	n. c.	? New Zealand.
172	<i>Crenella coarctata</i> , Dkr.	e. r.	Galapagos.
173	<i>Lithophagus attenuatus</i> , Desh.	e. r.	Peru, ? Chili.

No.	Name.	Freq.	Other Localities.
174	<i>Lithophagus calyculatus</i> , n. s.....	1	
175	— <i>plumula</i> , <i>Hanl.</i>	r.	Panama.
176	— <i>aristatus</i> , <i>Sol.</i>	c.	Senegal, West Indies.
	= <i>Modiola caudigera</i> , Lam.		
	= <i>Mytilus ropan</i> , Desh.		
176b	— —, var. <i>gracilior</i>	v. r.	
176c	— —, var. <i>tumidior</i>	e. r.	
177	— <i>cinnamomeus</i> , <i>Chemn.</i>	1	{ Mauritius, Philippines, Cuba, Venezuela, Central America.
178	<i>Leiosolenus spatiosus</i> , n. s.....	e. r.	
179	—, sp. ind.	1	
<i>Arcadæ.</i>			
180	<i>Arca grandis</i> , <i>Brod. & Sow.</i>	v. c.	Pan., Real Llejós, Bay Guayaq.
181	— <i>multicostata</i> , <i>Sow.</i>	2	Gulf Tehuantepec.
182	— ? <i>labiata</i> , <i>Sow.</i>	2	Real Llejós, Tumbez, W. Indies.
	? = <i>A. labiosa</i> , <i>Sow.</i>		
	? = <i>A. incongrua</i> , <i>Say.</i>		
183	— <i>bifrons</i> , n. s.	e. r.	
184	— <i>tuberculosa</i> , <i>Sow.</i>	v. c.	Panama, Real Llejós.
	? + <i>A. trapezia</i> , <i>Desh.</i>		
	+ <i>A. similis</i> , C. B. Ad.		
185	— <i>reversa</i> , <i>Gray.</i>	2	Panama, Tumbez.
	= <i>A. hemicardium</i> , <i>Koch.</i>		
186	— ? <i>brevifrons</i> , <i>Sow.</i>	1	Tumbez.
187	— <i>emarginata</i> , <i>Sow.</i>	e. r.	Atacamas, Rl. Llej., Xipix., Pan.
188	—, sp. ind. (a)	2	
689	—, — (b)	1	
189	<i>Byssoarca Pacifica</i> , <i>Sow.</i>	r.	St. Elena, Bijooga Island.
190	— <i>mutabilis</i> , <i>Sow.</i>	r.	Island of Plata, Panama.
	Comp. <i>Arca Americana</i> , D'Orb. = <i>imbricata</i> , Brug.		
191	— <i>fusca</i> , <i>Brug.</i>	1	East and West Indies.
192	— <i>vespertilio</i> , n. s.	1	
193	— <i>illota</i> , <i>Sow.</i>	e. r.	Gulf Nicoya.
	Comp. <i>A. Tabogensis</i> , C. B. Ad.		
194	— <i>gradata</i> , <i>Brod. & Sow.</i>	v. r.	St. Elena, Taboga, West Indies, and Fossil.
	? = <i>A. squamosa</i> , Lam. = <i>A. Domingensis</i> , Lam.		
	= <i>Arca clathrata</i> , DeFr.		
	Comp. <i>B. divaricata</i> , <i>Sow.</i>		
	Comp. <i>B. pusilla</i> , <i>Sow.</i>		
	Comp. <i>A. donaciformis</i> , Rve.		
195	— <i>solida</i> , <i>Sow.</i>	n. u.	Panama, Payta.
196	<i>Pectunculus inæqualis</i> , <i>Sow.</i> (non <i>Gray</i>)	3	Panama, Real Llejós, Puerto Portrero, Guayaquil.
	= <i>P. pectiniformis</i> , Wood (non Lam.)		
	? + <i>P. assimilis</i> , <i>Sow.</i>		
197	— ? <i>multicostatus</i> , <i>Sow.</i>	1	Ecuador, Guayaquil.
<i>Nuculidæ.</i>			
198	<i>Nucula exigua</i> , <i>Sow.</i>	1	Panama, Bay of Caraccas.
199	<i>Leda Elenensis</i> , <i>Sow.</i>	2	Panama, St. Elena.
<i>Aviculidæ.</i>			
200	<i>Pinna maura</i> , <i>Sow.</i>	com.	Panama.
201	— <i>lanceolata</i> , <i>Sow.</i>	n. u.	Puerto Portrero.
202	— ? <i>rugosa</i> , <i>Sow.</i>	v. r.	Panama.
203	<i>Avicula sterna</i> , <i>Gld.</i>	n. u.	Panama.
	= <i>A. Atlantica</i> , Mke.		
204	<i>Margaritiphora Mazatlanica</i> , <i>Hanl.</i>	v. r.	
	= <i>A. fimbriata</i> , Dkr.		
205	<i>Isognomon Chemnitzianum</i> , D'Orb.	n. u.	Panama, W. Indies, Conchagua.
	= <i>Perna flexuosa</i> , <i>Sow.</i>		

No.	Name.	Freq.	Other Localities.
206	Isognomon Janus, n. s.	e. r.	
	<i>Pectinidæ.</i>		
207	Pecten circularis, Sow.	2	Guaymas.
690	—, sp. ind. (a)	e. r.	
691	—, sp. ind. (b)	1	
	<i>Spondylidæ.</i>		
208	Spondylus calcifer, n. s.	n. u.	Panama.
	= <i>S. Lamarckii</i> , Hanl. MS.		
209	? —, sp. ind.		
210	Plicatula penicillata, n. s.	e. r.	Bay of Fonseca.
	= <i>P. dubia</i> , var. Sow. MS.		
	<i>Ostreadæ.</i>		
211	Ostrea iridescens, Gray	v. r.	Senegal, Panama, Guacomayo.
	? = <i>O. spathulata</i> , Lam.		
	? = <i>O. margaritacea</i> , Lam.		
	? = <i>O. æquatorialis</i> , D'Orb.		
	? = <i>O. rufa</i> , pars, Gld.		
212	— Virginica, Gmel.	v. r.	Atlantic, Panama.
	? = <i>O. rufa</i> , pars, Gld.		
213	— Columbiensis, Hanl.	v. r.	St. Elena.
214	— conchaphila, n. s.	n. u.	S. Diego, S.W. Mex., Pan., W. Afr.
214b	— (?? —, var.) palmula	e. r.	Upper California, S.W. Mexico.
	Comp. <i>O. Cumingiana</i> .		
215	—, sp. ind.	v. r.	San Diego, Panama.
	<i>Anomiadæ.</i>		
216	Placunanomia pernoides, Gray	e. r.	Senegal, Panama.
	= <i>Tedinia pernoides</i> , Gray.		
217	— foliata, Brod.	2	S.W. Mexico, Island of Muerte,
	+ <i>P. pectinata</i> , teste Gray.		Guayaquil, West Indies.
	+ <i>P. echinata</i> , teste Gray.		
218	— claviculata, n. s.	2	
219	Anomia lampe, Gray	c.	Monterey, La Paz, Pan., Guayaq.
	Class PTEROPODA.		
	Unknown.		
	Class GASTEROPODA.		
	Subclass OPISTHOBRANCHIATA.		
	Order Tectibranchiata.		
	<i>Cylichnidæ.</i>		
221	Cylichna luticola, C. B. Ad.	2	Panama.
222	Tornatina infrequens, C. B. Ad.	v. r.	Panama.
	? = <i>Bulla gracilis</i> , Mke.		
223	— carinata, n. s.	v. r.	
	<i>Bullidæ.</i>		
224	Bulla Adamsi, Mke.	n. c.	
225	— ? nebulosa, Gld.	e. r.	Sta. Barb., San Diego, Guaymas.
226	— Quoyii, Gray	e. r.	Galapagos.
227	— exarata, n. s.	2	
228	—, sp. ind.	1	
229	Haminea cymbiformis, n. s.	1	
	<i>Philinidæ.</i>		
692	Smaragdinella thecaphora, (Nutt.) n. s.	1	

No.	Name.	Freq.	Other Localities.	
Subclass PULMONATA.				
Order Geophila.				
Testacellidæ.				
230	Glandina Albersi, Pfr.	e. r.	Brazils, Peru, Columbia, West Indies, Conchagua.	
231	— turris	2		
Helicidæ.				
232	Orthalicus zebra, Müll.	c.		
	= Bulimus undatus, Lam.			
	+ B. melanocheilus, Val.			
	+ Orthalicus livens, Beck.			
	+ B. zigzag, Lam.			
	+ B. princeps, Brod.			
233	— Ziegleri, Pfr.	e. r.		
234	— ? Mexicanus, Lam.	1		
Order Limnophila.				
Auriculidæ.				
235	Melampus olivaceus, n. s.	n. u.	San Diego.	
Limnidæ.				
236	Physa aurantia, n. s.	n. c.		
	= P. Peruviana, Mke. (non Gray).			
237	— elata, Gld.	v. c.		
238	Planorbis tumens, n. s.	n. u.		
	= P. tenagophilus, Mke. non D'Orb.			
Order Thalassophila.				
Siphonariadæ.				
239	Siphonaria Lecanium, Phil.	c.	St. Elena, Guayaquil.	
239b	— —, var. palmata.	n. c.		
240	— æquilirata, n. s.	1		
241	— —, sp. ind.	1		
Subclass PROSOBRANCHIATA.				
Order Heteropoda.				
Ianthinidæ.				
242	Ianthina striulata, n. s.	v. c.	Sandwich Islands, Nuttall.	
242b	— —, var. contorta	e. r.		
243	— decollata, nom. prov.	e. r.		
	Comp. I. globosa, Swains., and I. prolongata, D'Orb.			
Order Lateribranchiata.				
Dentaliadæ.				
244	Dentalium liratum, n. s.	v. r.		
245	— hyalinum, Phil.	1		
246	— corrugatum, n. s.	1		
247	— pretiosum, Nutt.	e. r.		
Order Scutibranchiata.				
Chitonidæ.				
248	Lophyrus articulatus, Sow.	c.	San Blas.	

No.	Name.	Freq.	Other Localities.
249	<i>Lophyrus albolineatus</i> , <i>Brod. & Sow.</i>	v. r.	
250	— <i>striato-squamosus</i> , n. s.	1	
251	<i>Tonicia Forbesii</i> , n. s.	2	
252	<i>Lepidopleurus sanguineus</i> , <i>Rve.</i>	v. r.	
	Comp. <i>Ch. limaciformis</i> , <i>Sow.</i>		
253	— <i>clathratus</i> , n. s.	1	
254	— <i>bullatus</i> , n. s.	2	
254b	— —, var. <i>calciferus</i>	1	
255	? — <i>MacAndreæ</i> , n. s.	2	
256	— <i>Beanii</i> , n. s.	2	
257	<i>Chiton flavescens</i> , n. s.	6	
258	<i>Acanthochites Arragonites</i> , n. s.	e. r.	
<i>Patellidæ.</i>			
259	<i>Patella Mexicana</i> , <i>Brod. & Sow.</i>	c.	Payta.
	= <i>P. maxima</i> , <i>D'Orb.</i>		
260	— <i>pediculus</i> , <i>Phil.</i>	n. u.	Acapulco.
	= <i>P. corrugata</i> , <i>Rve.</i>		
261	— <i>discors</i> , <i>Phil.</i>	v. c.	S.W. Mexico.
262	<i>Nacella</i> , sp. ind.	1	
<i>Acmaeidæ.</i>			
263	<i>Acmaea mesoleuca</i> , <i>Mke.</i>	e. a.	
	= <i>Patella diaphana</i> , <i>Rve.</i> .....	...	Central America.
	= <i>Lottia</i> ? <i>patina</i> , <i>C. B. Ad.</i> (non <i>Esch.</i>) .....	...	Panama.
	?+? <i>A. personoides</i> , <i>Midd.</i> .....	...	Kenai Bay.
	?+? <i>A. æruginosa</i> , <i>Midd.</i> .....	...	Bodegas.
	+ <i>P. striata</i> , <i>Rve.</i> non <i>Quoy</i> .....	...	Galapagos.
	+ <i>A. mutabilis</i> , <i>Mke. pars.</i>		
264	— <i>fascicularis</i> , <i>Mke.</i>	n. u.	San Diego.
	+ <i>A. mutabilis</i> , <i>Mke. pars.</i>		
265	— <i>patina</i> , <i>Esch.</i> (for syn. v. supra)	2	N. & S. temperate America.
266	— <i>persona</i> , <i>Esch.</i>	1	Sitka—San Diego.
267	— <i>scabra</i> , <i>Nutt., Rve., Jay</i>	1	Monterey &c., S.W. Mexico.
	Non <i>P. scabra</i> , <i>Gld.</i>		
268	— <i>mitella</i> , <i>Mke.</i>	n. u.	
	= <i>P. navicula</i> , <i>Rve.</i>		
269	<i>Scutellina navicelloides</i> , n. s.	1	
<i>Gadiniadæ.</i>			
270	<i>Gadinea pentagoniostoma</i> , <i>Sow.</i>	n. c.	
<i>Fissurellidæ.</i>			
271	<i>Fissurella virescens</i> , <i>Sow.</i>	v. c.	Panama.
[272	— <i>Barbadensis</i> , <i>Gmel.</i>]	1	West Indies.
273	— <i>rugosa</i> , <i>Sow.</i>	n. u.	Galapagos.
	+ <i>F. chlorotrema</i> , <i>Mke.</i>		
	+ <i>F. humilis</i> , <i>Mke.</i>		
	+ <i>F. viminea</i> , <i>Mke.</i>		
274	— <i>nigrocincta</i> , n. s.	e. r.	
275	—, sp. ind.	1	
276	— <i>alba</i> , n. s.	c.	
	?+ <i>F. gemmata</i> , <i>Mke.</i> (jun.)		
277	— <i>Peruviana</i> , <i>Lam.</i>	1	{ Peru, Lobos, Iquique, Is. Mexilones, Valparaiso.
278	— <i>spongiosa</i> , n. s.	2	
279	<i>Glyphis inæqualis</i> , <i>Sow.</i>	n. c.	Guacomayo, Galap., St. Elena, Monte Christi.
	+ <i>Fissurella pica</i> , <i>Sow.</i>		
	+ <i>F. mus</i> , <i>Rve.</i>		
280	— <i>alta</i> , <i>C. B. Ad.</i>	e. r.	Panama.
281	<i>Rimula Mazatlanica</i> , n. s.	e. r.	

No.	Name.	Freq.	Other Localities.
<i>Trochidae.</i>			
282	<i>Callopoma fluctuosum</i> , Mawe = <i>Turbo Fokkesii</i> , Jonas. = <i>T. fluctuatus</i> , Rve.	c.	St. Elena, San Diego, Sitka.[?]
283	<i>Phasianella perforata</i> , Phil.	e. r.	Payta, Panama.
283b	—, var. <i>striulata</i>	2	
284	— <i>compta</i> , Gld.	1	San Diego, Sta. Barbara.
285	<i>Bankivia varians</i> , jun., Beck	1	Australia, S. Africa.
286	<i>Uvanilla olivacea</i> , Mawe = <i>Trochus brevispinosus</i> , Val. = <i>T. erythrophthalmus</i> , Phil. ? = <i>T. Melchersi</i> , Mke.	e. c.	S.W. Mexico.
287	— <i>inermis</i> , Gmel. = <i>Trochus olivaceus</i> , Phil. (not Wood). = <i>U. variegatus</i> , Gray in B.M.	2	
288	— <i>unguis</i> , Mawe = <i>Turbo digitatus</i> , Desh. = <i>Trochus amictus</i> , Val. = <i>T. stellaris</i> , Mke.	e. c.	S.W. Mexico.
289	<i>Trochus versicolor</i> , Mke. ? = <i>Ziziphinus Californicus</i> , A. Ad. = <i>T. eximius</i> , Rve.	c.	Payana.
290	— <i>MacAndreæ</i> , n. s. ? = <i>T. minutus</i> , Mke.	e. r.	Panama.
325	—, sp. ind.	1	
291	<i>Omphalius</i> ? <i>rugosus</i> , var. <i>rufotinctus</i>	v. r.	? China.
292	— <i>viridulus</i> , Gmel. = <i>Phorcus variegatus</i> , A. Ad. = <i>Trochus Brazilianus</i> , Mke. teste Ad. + <i>T. Byronianus</i> , Wood. + <i>T. reticulatus</i> , Gld. MS.	1	San Diego.
293	— <i>ligulatus</i> , Mke. ? = <i>Phorcus Californicus</i> , A. Ad.	c.	
294	— <i>globulus</i> , n. s. ? = <i>Trochus glomus</i> , Mke.	5	
295	<i>Vitrinella Panamensis</i> , C. B. Ad.	1	Panama.
296	— <i>parva</i> , C. B. Ad.	30	Panama.
297	? — <i>decussata</i> , n. s.	30	
298	— <i>monile</i> , n. s.	30	
299	— <i>monilifera</i> , n. s.	7	
300	— <i>lirulata</i> , n. s.	1	
301	— <i>subquadrata</i> , n. s.	16	
302	— <i>bifilata</i> , n. s.	8	
303	— <i>bifrontia</i> , n. s.	4	
304	— <i>perparva</i> , var. <i>nodosa</i>	1	Panama.
305	— <i>exigua</i> , C. B. Ad.	6	Panama.
306	— <i>coronata</i> , n. s.	4	
307	? — <i>annulata</i> , n. s.	1	
308	— <i>cineta</i> , n. s.	1	
309	— <i>carinulata</i> , n. s.	1	
310	? — <i>naticoides</i> , n. s.	1	
311	? — <i>planospirata</i> , n. s.	1	
312	? — <i>orbis</i> , n. s.	4	
313	? <i>Liotia carinata</i> , n. s.	1	
314	? — <i>striulata</i> , n. s.	1	
315	? — <i>C-B-Adamsii</i> , n. s.	1	
316	? —, sp. ind.	1	
317	? <i>Globulus tumens</i> , n. s.	3	
318	<i>Ethalia pyrallosa</i> , n. s.	1	
319	— <i>lirulata</i> , n. s.	2	
320	— <i>pallidula</i> , n. s.	1	

No.	Name.	Freq.	Other Localities.
321	<i>Ethalia carinata</i> , n. s.	2	
322	— <i>amplectans</i> , ? n. s.	4	
323	<i>Teinostoma amplectans</i> , n. s.	2	
324	— <i>substriatum</i> , n. s.	2	
<i>Neritidæ.</i>			
326	<i>Nerita scabricosta</i> , Lam. = <i>N. ornata</i> , Sow. + <i>N. Deshayesii</i> , Récl. + <i>N. multijugis</i> , Mke.	n. c.	Is. Timor, Real Llejos, Panama, S.W. Mexico.
327	— <i>Bernhardi</i> , Récl. = <i>N. funiculata</i> , Mke.	n. u.	Peru, Panama, S.W. Mexico.
328	<i>Neritina cassiculum</i> , Sow.	c.	San Miguel.
329	— <i>picta</i> , Sow.	a.	Panama.
Order Pectinibranchiata.			
Suborder ROSTRIFERA.			
<i>Naricidæ.</i>			
330	<i>Vanicoro cryptophila</i> , n. s. (= <i>Narica</i> cr.)	r.	
<i>Calyptæidæ.</i>			
331	<i>Trochita ventricosa</i> , n. s.	1	
332	<i>Galerus conicus</i> , Brod.	e. r.	Pan., S. W. Mex., Xip. & Salango.
333	— <i>mammillaris</i> , Brod. + <i>C. regularis</i> , C. B. Ad. = <i>C. Lamarckii</i> , Mke. ? + <i>C. Lichen</i> , Brod.	n. u.	Is. Muerte, Panama, Acap., Sta. Barbara, Payta—Guayaquil.
334	<i>Crepidula aculeata</i> , Gmel. + <i>C. echinus</i> , Brod. + <i>C. hystrix</i> , Brod. + <i>C. costata</i> , Mke. + <i>C. Californica</i> , Nutt.	c.	W. I., E. and W. S. Am., Africa, E. I., Australia, N. Zealand.
335	— <i>dilatata</i> , Lam. + <i>C. Peruviana</i> , Lam. + <i>C. depressa</i> , Desh. + <i>C. patula</i> , Desh. + <i>C. Adolphei</i> , Less. + <i>C. nautiloides</i> , Less. + <i>C. strigata</i> , Brod. + <i>C. arcuata</i> , D'Orb. teste Gray. ?? + <i>C. pallida</i> , Brod. ? + <i>C. foliacea</i> , Brod. ? + <i>C. Patagonica</i> , D'Orb. (pars).	2	W. Coast S. America <i>passim</i> , ? Mauritius.
336	— <i>dorsata</i> , Brod., var. <i>bilobata</i>	e. r.	
337	— <i>excavata</i> , Brod.	3	Real Llejos, Panama.
338	— <i>adunca</i> , Sow. = <i>C. solida</i> , Hds. = <i>C. rostriformis</i> , Gld. = <i>C. rostrata</i> , C. B. Ad. = <i>C. uncata</i> , Mke. = <i>Garnotia solida</i> , Gray.	e. r.	Bodegas, Da Fuca Str., Sta. Bar- bara, Panama.
339	— <i>incurva</i> , Brod. = <i>C. hepatica</i> , Mke. non Desh., nec C. B. Ad. nec Krauss.	n. u.	San Blas., Pan., Payta, St. Elena, Xipixapi.
340	— <i>onyx</i> , Sow. = <i>C. ? hepatica</i> , C. B. Ad. non Mke. = <i>C. amygdalus</i> , Val. ? = <i>C. contorta</i> , Mke. + <i>C. cerithicola</i> , C. B. Ad. + <i>C. Patagonica</i> + <i>protea</i> , D'Orb. pars.	v. r.	Panama, ? S. and W. Africa.

No.	Name.	Freq.	Other Localities.
341	<i>Crepidula nivea</i> , C. B. Ad. + <i>C. squama</i> , Brod. + <i>C. striolata</i> , Mke. + <i>C. Lessonii</i> , Brod. + <i>C. unguiculus</i> , var. Brod. + <i>C. protea</i> , D'Orb. pars. Comp. <i>C. explanata</i> , Gld. = <i>C. perforans</i> , Val. = <i>C. exuviata</i> , Nutt.	v. c.	Panama, Is. Muerte, S. America, ? Vancouver's Strait.
342	— <i>unguiformis</i> , Lam. <i>Patella crepidula</i> , Linn. + <i>C. Italica</i> , Deifr. + <i>C. plana</i> , Say. + <i>P. goreensis</i> , Gmel.	e. r.	Atlantic, both coasts; Panama, Singapore.
343	<i>Crucibulum imbricatum</i> , Sow. = <i>C. scutellatum</i> , Gray. = <i>C. rugosa</i> , Less. non Desh. + <i>C. extensorium</i> , Sow. (non Lam.) = <i>C. dentata</i> , Mke.	n. u.	W. Coast America, Panama, Peru.
344	— <i>spinosum</i> , Sow. = <i>C. peziza</i> , Wood. + <i>C. hispida</i> , Brod. + <i>C. maculata</i> , Brod. + <i>C. tenuis</i> , Brod. = <i>C. tubifera</i> , Less. ? + <i>C. rugosa</i> , Desh. = <i>C. lignaria</i> , Brod. + <i>C. quiritiquina</i> , D'Orb. = <i>C. Byronensis</i> , Gray.	n. u.	W. Coast, Panama, Peru, Sta. Barbara.
345	<i>Calyptrea cepacea</i> , Brod. <i>Capulidæ.</i>	1	Is. Muerte, Panama.
346	<i>Hipponyx serratus</i> , n. s. ? = <i>H. foliaceus</i> , Mke.	r.	
347	— <i>antiquatus</i> , Linn. = <i>Pileopsis mitrula</i> , Lam. = <i>Hipponyx Panamensis</i> , C. B. Ad.	3	West Indies, Senegal, Lobos Is., Panama.
348	— <i>planatus</i> , n. s.	4	Panama.
349	— <i>barbatus</i> , Sow. ? = <i>H. australis</i> , Mke.	v. r.	Society Islands, Panama.
350	— <i>Grayanus</i> , Mke. = <i>H. radiata</i> , Gray (non Quoy nec Desh.)	1	Galapagos, Sandwich Islands, Panama, S.W. Mexico, Guinea.
351	<i>Capulus</i> , sp. ind. (like <i>C. militaris</i>) <i>Vermetidæ.</i>	3	
352	<i>Aletes centiquadrus</i> , Val. + <i>Vermetus Peronii</i> , Val.	n. u.	S.W. Mexico, Panama.
352b	— —, var. <i>imbricatus</i>	2	
353	— <i>margaritarum</i> , Val.	3	
354	<i>Vermetus eburneus</i> , Rve. ? Jun. = <i>V. pellucidus</i> , Brod. & Sow.	v. r.	S. America, W. Columbia.
355	? <i>Bivonia contorta</i> , n. s. ? = <i>Vermetus glomeratus</i> , Mke., C. B. Ad., non Phil. nec Linn. Comp. <i>V. Panamensis</i> , C. B. Ad.	r.	
355b	— —, var. <i>indentata</i>	v. r.	
356	— <i>albida</i> , n. s.	3	
357	—, sp. ind. (a)	2	
358	—, — (b)	1	
359	<i>Petalconchus macrophragma</i> , n. s. <i>Cæcidæ.</i>	n. u.	Panama.
360	<i>Cæcum</i> (<i>Elephantulum</i>) <i>insculptum</i> , n. s.	2	
361	— — — <i>subspirale</i> , n. s.	12	
362	— — — <i>abnormale</i> , n. s.	2	
363	— — — <i>obtusum</i> , n. s.	6	

No.	Name.	Freq.	Other Localities.
364	Cæcum (Elephantulum) liraticinctum, n. s.... + var. <i>tenuiliratum</i> . + var. <i>subobsoletum</i> . + var. <i>subconicum</i> .	50	
365	— heptagonum, n. s.....	1	
366	— (Anellum) elongatum, n. s. ?+ var. <i>semilæve</i> .	15	
367	— subimpressum, n. s.	8	
368	— firmatum, C. B. Ad. + C. <i>diminutum</i> , C. B. Ad. + C. <i>pygmæum</i> , C. B. Ad. + C. <i>monstruosum</i> , C. B. Ad. + C. <i>firmatum</i> , C. B. Ad.	14	Panama.
369	— clathratum, n. s.	12	
370	— quadratum, n. s. + var. <i>compactum</i> .	43	
371	— undatum, n. s. ?+ C. <i>parvum</i> , C. B. Ad.	320	Panama.
372	— (Fartulum) læve, C. B. Ad.	170	Panama.
373	— farcimen, n. s.	8	
374	— glabriforme, n. s.	5	
375	— corrugulatum, n. s.	1	
376	— dextroversum, n. s.	20	
377	— reversum, n. s.	1	
378	— teres, n. s.	5	
<i>Turritellidæ.</i>			
379	Turritella goniostoma, Val. = T. <i>Broderipiana</i> , D'Orb. + T. <i>lentiginosa</i> , Rve. ?+ T. <i>Hookeri</i> , Mke. (non Rve.) ?+ T. <i>Banksii</i> , Rve.	n. u.	Acap., S.W. Mex., Pan., Payta, Salango, Guacomayo.
380	— tigrina, Kien. = T. <i>imbricata</i> , Mke. (? non Lam.) ?+ T. <i>Cumingii</i> , Rve. ?+ T. <i>leucostoma</i> , Val.	e. r.	Conchagua.
<i>Cerithiadæ.</i>			
381	Cerithium maculosum, Kien. = C. <i>adustum</i> , C. B. Ad. = C. <i>nebulosum</i> , Sow. ?var. = C. <i>adustum</i> , Sow. (non Kien.)	c.	Acap., Gal., S.W. Mex., Taboga.
382	— ?famelicum, C. B. Ad., var. <i>mediolæve</i> ... = C. <i>umbonatum</i> , Sow.—Mus. Cum. Comp. C. <i>musica</i> , Val.	e. r.	Panama, S.W. Mexico.
383	— ?uncinatum, Gmel. = C. <i>famelicum</i> , C. B. Ad. pars, teste Sow.	e. r.	Panama, S.W. Mexico.
384	—, sp. ind. (a)	1	
385	— alboliratum, n. s.	10	
386	—, sp. ind. (b)	1	
387	— stercus-muscarum, Val. = C. <i>irroratum</i> , Gld. = C. <i>ocellatum</i> , Mke. (? non Brug.)	c.	Acap., S.W. Mex., Pan., Galap.
388	— interruptum, Mke. ? = C. <i>Gallapaginis</i> , Sow.	r.	Panama, Galapagos.
389	Vertagus gemmatus, Hds.	c.	Panama.
390	—, sp. ind.	1	
391	Triforis alternatus, C. B. Ad.	8	Panama.
392	— inconspicuus, C. B. Ad.	12	Panama.
393	— ?infrequens, C. B. Ad.	6	Panama.
394	Cerithidea Montagnei, D'Orb. = Cerithium <i>Reevianum</i> , C. B. Ad. Comp. C. <i>pulchrum</i> , C. B. Ad.	c.	Guayaquil, Panama.

No.	Name.	Freq.	Other Localities.
395	Cerithidea ? varicosa, var. Mazatlanica..... = <i>Cerithium validum</i> , C. B. Ad.	n. c.	Guayaquil, Panama.
	<i>Litorinidæ.</i>		
396	Litorina conspersa, Phil. + <i>L. puncticulata</i> , Phil. = <i>L. modesta</i> , Mke. non Phil.	e. c.	Real Llejos, Panama.
397	— aspera, Phil.	n. u.	Sitka, Mexico, S. Salvador, Pan.
398	— Philippii, n. s.	c.	
399	—, sp. ind.	3	
400	— fasciata, Gray	v. r.	Tumbez, Panama.
401	Modulus catenulatus, Phil. = <i>M. trochiformis</i> , Eyd. & Soul.	n. u.	Taboga, S. America.
402	—, sp. ind.	1	Acapulco.
403	— disculus, Phil. = <i>M. duplicatus</i> , var., A. Ad. = <i>M. dorsuosus</i> , Gld.	3	
404	Fossarus tuberosus, n. s.	3	
405	— angulatus, n. s.	2	e. r.
406	— (Isapis) maculosa, n. s.		
407	— ? —, sp. ind.	1	
	<i>Rissoiæ.</i>		
408	Rissoina stricta, Mke.	1	Europe, Caspian, United States, Ochotsk Sea.
409	—, sp. ind.	2	
410	— Woodwardii, n. s.	r.	
411	Barleeia lirata, n. s.*	9	
412	Alvania excurvata, n. s.	r.	
413	— effusa, n. s.	1	
414	— tumida, n. s.	2	
415	—, sp. ind.	1	
416	?Cingula, sp. ind.	1	
417	Hydrobia ulvæ, Penn. = <i>Patulinella stagnalis</i> , Midd.	4	
418	? —, sp. ind.	1	
	<i>Jeffreysiadæ.</i>		
419	Jeffreysia bifasciata, n. s.	90	
420	— Alderi, n. s.	3	
421	— tumens, n. s.	13	
422	—, sp. ind.	2	
	<i>Truncatellidæ.</i>		
423	Truncatella, sp. ind.	2	
	<i>Planaxidæ.</i>		
424	Planaxis nigrítella, Forbes = <i>P. acutus</i> , Mke. + <i>P. obsoletus</i> , Mke.	e. a.	San Juan.
425	Alaba supralirata, n. s. Comp. <i>Cingula tervaricosa</i> , C. B. Ad.	50	Jamaica.
426	— violacea, n. s.	1	
427	— terebralis, n. s.	1	
428	— alabastrites, n. s.	1	
429	— scalata, n. s.	1	
430	? — conica, n. s.	4	
431	? — mutans, nom. prov.	1	
432	? — laguncula, nom. prov.	1	
433	? —, sp. ind. (a)	1	
434	? —, — (b)	1	

* The absence of typical *Rissoæ* among so many species of small shells is deserving of notice.

No.	Name.	Freq.	Other Localities.
<i>Ovulidæ.</i>			
435	<i>Radius variabilis</i> , C. B. Ad. = <i>O. Californica</i> , Sow.	r.	Pan., San Juan, Sta. Barbara.
<i>Cypræidæ.</i>			
436	<i>Cypræa exanthema</i> , Linn. ?+ <i>C. cervus</i> , Linn. = <i>cervina</i> , Lam. + <i>C. cervinetta</i> , Kien.	n. u.	West Indies, Pacific Islands.
437	<i>Luponia</i> ? <i>spurca</i> , Linn.	1	Atlantic.
438	<i>Aricia arabicula</i> , Lam. ?+ <i>A. punctulata</i> , Gray.	e. c.	S.W. Mex., Pan., St. Elena and Real Llejos. [Lat. 1-10°.
439	<i>Trivia pustulata</i> , Lam.	c.	S.W. Mexico, Panama, Is. Plata.
440	— <i>radians</i> , Lam.	r.	St. Elena, Panama, Acapulco.
441	— <i>Solandri</i> , Gray	v. r.	
442	— <i>sanguinea</i> , Gray + <i>T. fusca</i> , Gray. ?+ <i>C. lathyrus</i> , Dufresne.	c.	St. Elena, Panama.
443	— <i>pulla</i> , Gask.	1	Galapagos, Bay Guayaquil.
444	— <i>subrostrata</i> , Gray.	1	
<i>Cancellariadæ.</i>			
445	<i>Cancellaria urceolata</i> , Hinds	v. r.	Gulf Papagayo, San Blas.
446	— <i>goniostoma</i> , Sow.	n. u.	Conchagua, San Salv., Taboga.
<i>Strombidæ.</i>			
447	<i>Strombus galeatus</i> , Swains. = <i>S. galea</i> , Wood. = <i>S. crenatus</i> , Sow.	c.	Gulf Nicoya, Taboga, S.W. Mex.
448	— <i>granulatus</i> , Swains.	e. r.	St. Elena, Gal., Pan., S.W. Mex.
449	— <i>gracilior</i> , Sow.	v. r.	St. Elena, Panama, La Paz.
Suborder TOXIFERA.			
<i>Terebridæ.</i>			
450	<i>Terebra</i> (<i>Myurella</i>) <i>albicincta</i> , n. s. ? = <i>T. armillata</i> , Mke. (non Hinds).	n. c.	
451	— — <i>Hindsii</i> , ?n. s.	6	
452	— — <i>subnodosa</i> , ?n. s.	2	
453	— — <i>rufocinerea</i> , ?n. s.	2	
454	<i>Subula luctuosa</i> , Hds.	c.	Gulf Nicoya, Puerto Portrero.
455	<i>Euryta fulgurata</i> , Phil. = <i>Terebra arguta</i> , Gld.	c.	East Africa.
456	— <i>aciculata</i> , (? Lam.) Hinds	2	Acapulco, Xipixapi.
<i>Pleurotomidæ.</i>			
457	<i>Pleurotoma funiculata</i> , Val. = <i>P. olivacea</i> , var. Rve. à pr. man.	v. r.	San Blas, S.W. Mex., G. Nicoya.
458	— <i>maculosa</i> , Sow.	n. u.	W. Columbia.
459	<i>Drillia incrassata</i> , Sow. = <i>Pleurotoma Bottæ</i> , Kien.	1	Panama, Monte Xti.
460	— <i>rudis</i> , Sow.	e. r.	Monte Xti.
461	— <i>aterrima</i> , var. Melchersi ? = <i>Pleurotoma maura</i> , Val. ?+ <i>P. atrior</i> , C. B. Ad. ?+ <i>P. discors</i> , Sow.	n. c.	Monte Xti, Panama.
462	? — <i>cerithioidea</i> , n. s.	3	
463	— <i>zonulata</i> , Rve. = <i>Pleurotoma cincta</i> , Sow. non Lam.	1	Monte Xti, Xipixapi, Panama.
464	— <i>monilifera</i> , n. s.	1	
465	— <i>albovallosa</i> , n. s.	1	
466	— <i>atronodosa</i> , n. s.	3	
467	— <i>luctuosa</i> , Hinds (1843), non D'Orb. ...	n. u.	Bay Guayaq., Gulf Magdalena.

No.	Name.	Freq.	Other Localities.
468	<i>Drillia Hanleyi</i> , n. s.	1	
469	—, sp. ind. (a)	2	
470	—, — (b)	2	
471	<i>Clathurella rava</i> , <i>Hinds</i> = <i>Defrancia</i> r., <i>Hds.</i> ...	2	Gulf Nicoya.
472	— <i>aurea</i> , n. s.	1	
473	<i>Mangelia</i> ? <i>acuticostata</i> , var. <i>subangulata</i>	1	
474	<i>Cithara</i> , sp. ind.	1	
<i>Conidæ.</i>			
475	<i>Conus regularis</i> , <i>Sow.</i>	n. c.	Gulf Nicoya, Pan., Guaymas.
	Comp. <i>C. arcuatus</i> , Br. & Sow. in Z. B. Voy., non Rve.		
476	— <i>purpurascens</i> , <i>Brod.</i>	e. r.	Panama, San Blas, Is. Annaa[?], S.W. Mexico.
	+ <i>C. comptus</i> , Gld. Comp. <i>C. interruptus</i> , Brod. & Sow.		
477	— <i>regalitis</i> , <i>Sow.</i>	e. r.	Real Lliejos, Pan., S.W. Mexico.
	? = <i>C. purpurascens</i> , var.		
	? = <i>C. achatinus</i> , Mke.		
478	— <i>arenatus</i> , <i>Brug.</i>	1	East Indies.
479	— <i>puncticulatus</i> , <i>Hwass.</i>	n. c.	
480	— <i>gladiator</i> , <i>Brod.</i>	r.	Panama, S.W. Mexico.
481	— <i>nux</i> , <i>Brod.</i>	e. r.	Galapagos, Taboga.
482	— ? <i>scalaris</i> , <i>Val.</i>	1	
483	?? —, sp. ind. (a).....	1	
Suborder PROBOSCIDIFERA.			
<i>Solariadæ.</i>			
484	<i>Torinia</i> ? <i>variegata</i> , <i>Lam.</i>	5	Panama, West Indies.
	= <i>Euomphalus radiatus</i> , Mke.		
485	— ? <i>granosa</i> , <i>Val.</i>	1	Acapulco.
	? = <i>Solarium fenestratum</i> , Hds.		
<i>Pyramidellidæ.</i>			
486	<i>Obeliscus</i> ? <i>conicus</i> , <i>C. B. Ad.</i>	1	Panama.
487	<i>Ostomia</i> <i>sublirulata</i> , n. s.	1	
488	—, sp. ind.	1	
489	— <i>lamellata</i> , n. s.	4	
490	— <i>subsulcata</i> , n. s.	4	
491	— <i>vallata</i> , n. s.	10	
492	— <i>mamillata</i> , n. s.	1	
493	— <i>tenuis</i> , n. s.	2	
494	— (<i>Auriculina</i>), sp. ind. (a)	3	
495	—, — (b)	2	
496	—, — (c)	1	
497	<i>Parthenia scalariformis</i> , n. s.	2	
498	— <i>quincecincta</i> , n. s.	2	
499	— <i>lacunata</i> , n. s.	7	
500	— <i>armata</i> , n. s.	12	
501	— <i>exarata</i> , n. s.	2	
502	— <i>ziziphina</i> , n. s.	1	
503	<i>Chrysallida ovata</i> , n. s.	12	
504	— <i>nodosa</i> , n. s.	5	
505	— <i>rotundata</i> , n. s.	10	
506	— <i>oblonga</i> , n. s.	5	
507	— <i>communis</i> , <i>C. B. Ad.</i>	500	Panama.
508	— <i>telescopium</i> , n. s.	13	
509	— <i>Reigeni</i> , n. s.	1	
510	— <i>effusa</i> , n. s.	1	
511	— <i>fasciata</i> , n. s.	20	
512	— <i>ovulum</i> , n. s.	70	
513	— <i>clathratula</i> , n. s.	1	Panama.

No.	Name.	Freq.	Other Localities.
514	<i>Chrysallida convexa</i> , n. s.	2	
515	— <i>Photis</i> , n. s.	2	
516	? — <i>indentata</i> , n. s.	2	
517	?? — <i>clausiliformis</i> , n. s.	4	
518	<i>Chemnitzia</i> ? <i>Panamensis</i> , <i>C. B. Ad.</i>	1	?Panama.
519	— <i>C-B-Adamsi</i> , n. s.	12	
520	— ? <i>similis</i> , <i>C. B. Ad.</i>	6	?Panama.
521	— <i>aculeus</i> , <i>C. B. Ad.</i>	6	Panama.
522	— <i>muricata</i> , n. s.	5	
523	— ? <i>affinis</i> , <i>C. B. Ad.</i>	1	?Panama.
524	— <i>prolongata</i> , n. s.	6	
525	— <i>gibbosa</i> , n. s.	2	
526	—, sp. ind. (<i>a</i>)	2	
527	—, — (<i>b</i>)	1	
528	—, — (<i>c</i>)	1	
529	—, — (<i>d</i>)	1	
530	— <i>gracillima</i> , n. s.	2	
531	— <i>undata</i> , n. s.	2	
532	— <i>flavescens</i> , n. s.	1	
533	— <i>terebralis</i> , n. s.	1	
534	— <i>tenuilrata</i> , n. s.	2	
535	— <i>unifasciata</i> , n. s.	1	
536	— (<i>Dunkeria</i>) <i>paucilirata</i> , n. s.	1	
537	— <i>subangulata</i> , n. s.	5	
538	— <i>cancellata</i> , n. s.	1	
539	— <i>intermedia</i> , n. s.	2	
540	? <i>Eulimella obsoleta</i> , n. s.	1	
541	—, sp. ind. (<i>a</i>)	1	
542	—, — (<i>b</i>)	1	
543	—, — (<i>c</i>)	1	
544	?? —, —	1	
545	<i>Aclis fusiformis</i> , n. s.	4	
546	— <i>tumens</i> , n. s.	1	?Java.
547	<i>Eulima</i> ? <i>hastata</i> , <i>Sow.</i>	6	St. Elena.
548	—, sp. ind. (<i>a</i>)	2	
549	—, — (<i>b</i>)	3	
550	<i>Leiostraca</i> ? <i>recta</i> , <i>C. B. Ad.</i>	2	Panama.
551	— ? <i>solitaria</i> , <i>C. B. Ad.</i>	3	Panama.
552	—, sp. ind. (<i>a</i>)	1	
553	—, — (<i>b</i>)	1	
554	— <i>linearis</i> , n. s.	1	
555	— ? <i>iota</i> , var. <i>retexta</i>	2	?Panama.
556	— ? <i>distorta</i> , var. <i>yod</i>	34	West Indies, Atlantic, Britain.
<i>Cerithiopsidæ.</i>			
557	<i>Cerithiopsis tuberculoides</i> , n. s.	9	
557 ^b	— ? —, var. <i>albonodosa</i>	3	
558	— <i>cerea</i> , n. s.	1	
559	— <i>pupiformis</i> , n. s.	4	
560	— <i>Sorex</i> , n. s.	4	
561	— <i>convexa</i> , n. s.	1	
562	— <i>decussata</i> , n. s.	2	
563	— <i>assimilata</i> , <i>C. B. Ad.</i>	20	Panama.
<i>Scalariadæ.</i>			
564	<i>Scalaria hexagona</i> , <i>Sow.</i>	2	Acapulco, Panama.
565	— <i>suprastrata</i> , n. s.	3	
566	—, sp. ind. (<i>a</i>)	3	
567	—, — (<i>b</i>)	1	
568	— <i>raricostata</i> , n. s.	1	
569	— (<i>Cirsotrema</i>) <i>funiculata</i> , ?n. s.	2	Panama.

No.	Name.	Freq.	Other Localities.
<i>Naticidæ.</i>			
570	<i>Natica maroccana</i> , Chemn..... = <i>Nerita marochiensis</i> , Gmel. (non Lam.) + <i>Natica lurida</i> , Phil. + <i>N. unifasciata</i> , Lam. pars (non nonnull.). + <i>N. Chemnitzii</i> , Pfr. non Récl. = <i>N. Pritchardi</i> , Forbes. ? + <i>N. iostoma</i> , Mke. Comp. <i>N. tessellata</i> , Phil.	n. c.	Guaymas, Panama, S.W. Mexico, Demerara, Philippines, Australia, E. and W. Africa, Red Sea, Pacific Islands.
571	—, sp. ind.	1	
572	<i>Lunatia tenuilirata</i> , n. s.	2	
573	—, sp. ind. (a)	1	
574	—, — (b)	5	
575	—, — (c)	2	
576	<i>Polinices uber</i> , Val..... + <i>N. alabaster</i> , Rve. ? = <i>N. ovum</i> , Mke. Comp. <i>N. rapulum</i> , Rve.	n. u.	Acapulco, ? Panama, Peru.
<i>Lamellariadæ.</i>			
577	<i>Lamellaria</i> , sp. ind. (a)	1	
578	? —, — (b)	1	
<i>Ficulidæ.</i>			
579	<i>Ficula ventricosa</i> , Sow. = <i>Bulla decussata</i> , Wood.	e. r.	Acapulco, S.W. Mexico, Panama (Havre Col. only).
<i>Tritonidæ.</i>			
580	<i>Triton</i> (Argobuccinum) nodosum, Chemn. ... = <i>Triton Chemnitzii</i> , Gray. = <i>Fusus Wiegmanni</i> , Anton. = <i>Cassidaria setosa</i> , Hinds. = <i>Triton perforatus</i> , Conr.	n. u.	Panama.
<i>Turbinellidæ.</i>			
581	<i>Turbinella cæstus</i> , Brod. = <i>T. ardeola</i> , Val.	n. u.	Bay Caraccas, Taboga.
<i>Fascioliariadæ.</i>			
582	<i>Lathirus ceratus</i> , Gray	e. r.	Galapagos, Panama, S.W. Mex.
583	<i>Leucozonia cingulata</i> , Lam.	e. c.	W. Mexico, Panama.
584	<i>Fasciolaria princeps</i> , Sow. = <i>F. aurantiaca</i> , Sow. (non Lam.)	n. u.	Peru.
585	<i>Mitra lens</i> , Wood	n. u.	Pan., St. Elena, Is. Plata, La Paz.
	= <i>Tiara foraminata</i> , Swains. = <i>Mitra Dupontii</i> , Kien.		
586	<i>Strigatella tristis</i> , Brod.....	n. u.	St. Elena, Galapagos, Panama.
<i>Volutidæ.</i>			
587	<i>Marginella minor</i> , C. B. Ad.	200	Panama.
588	— polita, n. s.	6	
589	— margaritula, ? n. s. Comp. <i>M. ovuliformis</i> , D'Orb.	30	West Indies.
<i>Olividæ.</i>			
590	<i>Oliva angulata</i> , Lam..... = <i>Voluta incrassata</i> , Dillw.	e. r.	Pan., G. Nicoya, B. Magdalena.
591	— Melchersi, Mke.....	v. r.	
592	— intertincta, ? n. s.	20	
593	— ? venulata, Lam..... + <i>O. araneosa</i> , C. B. Ad. = <i>O. reticularis</i> , var., Rve.	n. u.	Panama.
594	— Duclosi, Rve.....	2	

No.	Name.	Freq.	Other Localities.
595	<i>Olivella undatella</i> , Lam..... = <i>Voluta tenebrosa</i> , Wood.	c.	Acapulco, Panama.
596	— <i>tergina</i> , Ducl.....	e. c.	Conchagua.
597	— <i>anazora</i> , Ducl.	3	Xipixapi.
598	— ? <i>petiolita</i> , var. <i>aureocincta</i>	v. r.	? West Indies.
599	— <i>inconspicua</i> , C. B. Ad.	20	? West Indies.
600	— <i>dama</i> , Mawe	c.	
	= <i>O. lineolata</i> , Gray = <i>O. gracilis</i> , Ducl. = <i>O. purpurata</i> , Swains.		
601	— <i>zonalis</i> , Lam.....	e. r.	Acapulco.
602	<i>Aragonia testacea</i> , Lam..... = <i>Oliva hiatula</i> , Ducl. pars (? non Lam.).	c.	Acapulco, Real Llejos, Panama.
	<i>Purpuridae</i> .		
603	<i>Purpura patula</i> , Linn..... = <i>P. pansa</i> , Gld.	n. u.	Senegal, W. Indies, Philippines.
604	— <i>columellaris</i> , Lam.	n. u.	Galapagos.
605	— <i>muricata</i> , Gray	e. r.	Acapulco, Monte Xti, Panama.
	= <i>P. cassidiformis</i> , D'Orb. = <i>P. truncata</i> , Ducl.		
606	— <i>biserialis</i> , Blainv.	v. c.	
	= <i>P. bicostalis</i> , Rve. (? non Lam.) = <i>P. hæmastoma</i> , Mke. (? non Linn.) = <i>P. undata</i> , Val., C. B. Ad. (non Lam.) + <i>P. consul</i> , Mke. (non Lam.) ? + <i>P. hænatúra</i> , Val.		
	Comp. <i>P. floridana</i> , Conr.		West Indies.
607	— <i>triserialis</i> , Blainv.	r.	Acapulco.
	= <i>P. speciosa</i> , Val. = <i>P. centiquadra</i> , Val.		
608	— <i>triangularis</i> , Blainv.	r.	Galapagos, Taboga.
	= <i>P. Carolensis</i> , Rve.		
609	<i>Cuma kiosquiformis</i> , Ducl..... + <i>Purpura scalariformis</i> .	v. r.	Panama, La Paz.
610	— <i>costata</i> , Blainv.	c.	
	Comp. <i>Purpura diadema</i> , Rve.		
611	<i>Rapana</i> (<i>Rhizocheilus</i>) <i>nux</i> , Rve. ? + <i>Rh. Californicus</i> , A. Ad.	n. c.	
612	<i>Vitularia salebrosa</i> , King	n. u.	Panama.
	= <i>Murex vitulinus</i> , Gray (non Lam.)		
613	<i>Nitidella cribraria</i> , Lam..... = <i>Columbella mitriformis</i> , King ? = <i>Voluta</i> <i>ocelata</i> , Gmel. = <i>Buccinum parvulum</i> , Dkr. + <i>C. guttata</i> , C. B. Ad.	r.	West Indies, Panama, Ascension Island, Africa, Java.
614	—, sp. ind.	2	
	<i>Buccinide</i> .		
615	<i>Columbella major</i> , Sow..... = <i>C. strombiformis</i> , var. Kien. ? = <i>C. gibbosa</i> , Val. ? = <i>C. paytalida</i> , Kien.	e. c.	Panama, S.W. Mex., Is. Muerte.
616	— <i>strombiformis</i> , Lam.....	n. u.	Is. Muerte, Panama, Payta.
617	— <i>fuscata</i> , Sow.	c.	Pan., San Blas, Acap., Mte Xti, St. Elena.
	= <i>C. meleagris</i> , Kien.		
618	? — <i>cervinetta</i> , n. s.	1	
618b	—, var. <i>obsoleta</i>	2	
619	? <i>Metula</i> , sp. ind. (a)	2	
620	—, — (b)	7	
621	—, — (c)	2	
622	—, — (d)	1	
623	<i>Nassa luteostoma</i> , Brod. & Sow. = <i>N. xanthostoma</i> , Gray.	e. c.	Acapulco, Real Llejos, Panama.
624	— <i>tegula</i> , Rve.	n. c.	
	= <i>Buccinum tiarula</i> , (Kien.) B. M.		

No.	Name.	Freq.	Other Localities.
624b	<i>Nassa tegula</i> , var. <i>nodulifera</i> , Phil.	e. r.	
625	— <i>acuta</i> , n. s.	4	
626	—, sp. ind. (a)	2	
627	—, — (b)	1	
628	—, — (c)	2	
629	—, — (d)	2	
630	—, — (e)	1	
631	— ? <i>gemmulosa</i> , C. B. Ad.	5	?Panama.
632	— ? <i>versicolor</i> , C. B. Ad.	e. r.	?Panama.
633	— <i>crebristriata</i> , n. s.	1	
634	—, sp. ind. (f)	1	
635	—, — (g)	2	
636	—, — (h)	2	
637	—, — (i)	1	
<i>Pyrulidæ.</i>			
638	<i>Pyrula patula</i> , Brod. & Sow. = <i>P. melongena</i> , var., Sow.	c.	Acapulco, Bay Caraccas, Pan.
<i>Muricidæ.</i>			
639	<i>Fusus pallidus</i> , Brod. & Sow. = <i>Pyrula lignaria</i> , Rve. var. = <i>Pyrula turbinelloides</i> , Rve. Comp. <i>P. anomala</i> , Rve. = <i>Neptunæa anceps</i> , A. Ad.: also <i>P. lactea</i> , Rve.	e. r.	Callao, Hds.
640	— <i>tumens</i> , n. s.	1	
641	— <i>apertus</i> , n. s.	6	
642	—, sp. ind. (a)	1	
643	—, — (b)	1	
644	? <i>Cominella</i> , sp. ind.	1	
645	<i>Anachis scalarina</i> , Sow.	3	Panama, Chiriqui.
646	— <i>costellata</i> , Brod. & Sow.	v. r.	Panama.
646b	? —, var. <i>pachyderma</i>	v. r.	
646c	? —, var.	1	
647	— <i>coronata</i> , Sow. ?+ <i>Columbella costata</i> , Val. ? = <i>Columbella terpsichore</i> , Mke. (non Sow.) Comp. <i>Buccinum gilvum</i> , Mke.	e. r.	Acap., Quibo, S.W. Mex., Pan.
648	— ? <i>fulva</i> , Sow.	1	S.W. Mexico, Panama.
649	— <i>nigrofusca</i> , n. s.	6	
650	— <i>serrata</i> , n. s.	12	
651	— <i>pygmæa</i> , Sow. ?+ <i>Columbella costulata</i> , C. B. Ad.	e. r.	St. Elena, Panama, ?W. Indies. West Indies.
652	— <i>Gaskoignei</i> , n. s.	1	Callao.
653	— <i>rufotincta</i> , n. s.	15	
654	? — <i>albonodosa</i> , n. s.	2	
655	? —, sp. ind. (a)	2	
656	? —, — (b)	2	
657	— (<i>Strombina</i>) <i>maculosa</i> , Sow.	2	Guacomayo.
658	? —, sp. ind.	2	
659	<i>Pisania insignis</i> , Rve. = <i>Buccinum mutabile</i> , Val. pars (non Linn.)	v. c.	St. Elena, Panama.
660	— <i>æquilirata</i> , n. s.	1	
661	— <i>gemmata</i> , Rve. = <i>Buccinum gemmulatum</i> , Mke. = <i>B. undosum</i> , fem., Kien. (non Linn.) = <i>B. mutabile</i> , pars, Val.	c.	Monte Xti.
662	— <i>sanguinolenta</i> , Ducl. = <i>Pollia hæmastoma</i> , Gray. = <i>Buccinum Janetii</i> , Val. = <i>Tritonium verrucosum</i> , Mke. MS.	r.	Panama.
663	— <i>ringens</i> , Rve.	3	Panama.
664	<i>Murex plicatus</i> , Sow.	1	Gulf Nicoya.

No.	Name.	Freq.	Other Localities.
665	Murex ?recurvirostris, var. lividus = <i>M. messorius</i> , Mke. non Sow. Comp. <i>M. nigrescens</i> , Sow.	n. c.	Gulf Nicoya, Panama.
666	— (Phyllonotus) nigrilus, <i>Mensch.</i> + <i>M. ambiguus</i> , Rve.	c.	
667	— — nitidus, <i>Brod.</i>	1	Real Llejos, Guacomayo.
668	— — brassica, <i>Lam.</i>	n. u.	
669	— — <i>M. ducalis</i> , Brod. & Sow. — — bicolor, <i>Val.</i>	e. r.	Acapulco.
670	— — <i>M. erythrostomus</i> , Swains. — — <i>M. regius</i> , Sch. & Wagn. (non Swains.) Var. = <i>M. hippocastanum</i> , Phil.	c.	Acapulco, S.W. Mex., Panama.
671	— — <i>M. tricolor</i> , Val.		
671	— — princeps, <i>Brod.</i>	r.	Puerto Portrero.
672	— (Muricidea) ? lappa, <i>Brod.</i> Comp. <i>M. radicans</i> , Hds.	1	St. Elena, San Blas.
673	— — dubia, <i>Swains.</i>	3	Panama.
674	— — ?erinaceoides, var. indentatus	3	Acapulco.
675	— — , sp. ind.	2	
676	— — pauxillus, <i>A. Ad.</i>	r.	

Analysis of Species.

BRYOZOA	16
PALLIOBRANCHIATA	1
LAMELLIBRANCHIATA { Freshwater 4 }	218
{ Marine ... 214 }	
GASTEROPODA: <i>Opisthobranchiata</i>	10
<i>Pulmonata</i> : { Land 5 }	12
{ Freshwater ... 3 }	
{ Sea 4 }	
<i>Prosobranchiata</i> : Heteropoda	2
<i>Lateribranchiata</i> ...	4
<i>Scutibranchiata</i>	82
<i>Pectinibranchiata</i> :—	
<i>Rostrifera</i> ...	120
<i>Toxifera</i>	34
<i>Proboscifera</i>	193
—	347
—	435
—	457
Total	692
Or thus:— <i>Bryozoa</i>	16
<i>Land Shells</i>	5
<i>Freshwater Shells</i>	7
<i>Sea Shells</i>	664
Total	692

52. In January 1850, Conrad published in the Journ. Ac. Nat. Sc. Philadelphia, a list of "new and interesting shells from the coasts of Lower California and Peru, presented to the Academy by Dr. B. Wilson." It is not

stated in which of these two widely separated localities each species was found. They are as follow:—

Solecardia [genus described] *eburnea*, Conr.

Petricola sinuosa, Conr.=*P. robusta*, Sow.

Pholadopsis pectinata. [The genus here described is the *Jouannetia* of Desm., the *Triumphalia* of Sow.]

Parapholas bisulcata, Conr.=*Pholadidea melanura*, Sow.

Penitella Wilsonii, Conr.=*Parapholas acuminata*, Sow.

Triton perforatus, Conr.=*Triton Chemnitzii*, Gray.

Oliva propatula, Conr.=*O. testacea*, Lam.

53. The following are extracted from the fourth edition of the Catalogue of the Collection of Dr. Jay, New York, 1850*.

No.		No.	
1421.	<i>Pectunculus pectinoides</i> , Desh. Cuv. Règn. An. pl. 87. f. 8. Panama.	4204.	<i>Helix plicata</i> , Born. Guér. Mag. Zool. 1838, pl. 10. Pfr. no. 1036. = <i>Carocolla labyrinthus</i> , Lam. = <i>C. Haydiana</i> , Lea. Panama, Porto Cabello.
2057.	<i>Anodon Montezuma</i> , Lea, Trans. Am. Ph. Soc. viii. pl. 23. f. 55. Central America.	5056.	<i>Bulimus punctatissimus</i> , Less. var. Voy. Coq. p. 329. pl. 15. f. 3. Pfr. no. 215. Mexico.
2494.	<i>Spondylus pictorium</i> , Chenu. W. Mexico.	5090.	<i>Bulimus Schiedeanus</i> , Pfr.= <i>xanthostomus</i> , Wieg. Pfr. no. 505. Phil. Ic. pl. 1. f. 12. Mexico.
2610.	<i>Terebratula uva</i> , Brod. Küst. Conch. Cab. pl. 2 b. f. 8-10. Gulf Tehuantepec.	5922.	<i>Cyclostoma Mexicanum</i> , Mke., Thes. Conch. pl. 25. f. 93. Pfr. no. 10. Mexico.
3346.	<i>Helix areolata</i> , Sow. Küst. Conch. Cab. pl. 36. f. 10-12. Pfr. no. 393. Columbia River.	6287.	<i>Lymnaea ferruginea</i> , Hald. Mon. pl. 13. f. 19, 20. Oregon.
3737.	<i>Helix griseola</i> , Pfr. Küst. Conch. Cab. pl. 60. f. 17, 18. Pfr. no. 885 = <i>cicercula</i> , Fér. = <i>splendida</i> , Anton. Mexico.	6366.	<i>Physa osculans</i> , Hald. Mon. pl. 2. f. 11, 12. Mexico.
4419.	<i>Helix spirulata</i> , Pfr. Küst. Conch. Cab. pl. 30. f. 11-14. Pfr. no. 56. Real Llejos.	6454.	<i>Melania Largillierti</i> , Phil. Ic. pl. 2. f. 10. Central America.
3437.	<i>Helix Buffoniana</i> , Pfr. Phil. Icon. pl. 9. f. 2. Pfr. no. 507.	6491.	<i>Melania subnodosa</i> , Phil. Ic. pl. 4. f. 18. Central America.
3808.	<i>Helix imperator</i> , Montf. Fér. pl. 52. f. 4: 52 B. 1-3. Pfr. no. 789. Central America.	7421.	<i>Trochus mæstus</i> , Jonas, Phil. Ic. pl. 6. f. 5. California.
3852.	<i>Helix labyrinthus</i> , Chemn. vol. xi. pl. 208. f. 2048. Pfr. no. 1035. Central America.	7859.	<i>Cancellaria bifasciata</i> , Desh. Lam. A. s. V. p. 413 = <i>C. oblonga</i> , Kien. Panama.
3919.	<i>Helix lucubrata</i> , Say, Deser. New Shells, p. 13. Pfr. no. 245. Mexico.	8816.	<i>Columbella Boivinii</i> , Kien. Ic. p. 47. pl. 11. f. 1. Gulf Nicoya.
		10,078.	<i>Cypræa eglantina</i> , Ducl. Guér. Mag. Zool. 1833, pl. 28 = <i>C. Arabica</i> , teste Jay. California [?].

54. During the winter of 1850-51, Prof. C. B. Adams of Amherst College, Massachusetts, visited Panama for the express purpose of making collections for the College Museum, and obtaining exact information on points connected with habitat and station. Although he only remained thirty-eight days on the spot, he collected—

<i>Gasteropoda</i>	38,920	specimens of	376	species.
<i>Lamellibranchiata</i> ..	2,860	"	139	"
<i>Palliobranchiata</i>	50	"	1	"
	41,830		516	

* The localities in this Catalogue, unless confirmed from other sources, must be received with great caution. The work is, however, very useful, if only for the list of species, and references to an extensive library.

Prof. Adams had before collected about the same number of marine species at Jamaica; and, holding the theory that no species could be common to the two oceans, he was well qualified to detect any sources of error which might have militated against his own hypothesis. The very minute discrimination also to which he had accustomed himself in his researches among the land shells of Jamaica, would at once prevent him from confounding similar species. And as he visited no other spot than the shores of Panama, and the neighbouring island of Taboga, there is no danger of the admixture of specimens from different localities. The results of the expedition were "read before the Lyceum of Natural History, May 10th, 1852," and published in their *Annals*, vol. v. They also appear under a separate form as a "Catalogue of Shells collected at Panama, with Notes on their Synonymy, Station, and Geographical Distribution, by C. B. Adams, Professor of Zoology, &c. New York, 1852, pp. 334, 8vo." The author gives all his references from personal research: quotes every assigned habitat, with authorities (discriminating original testimony by the mark!); and, in addition to his own remarks, states the number of specimens from which he writes. He was not able to dredge, nor to make observations on the animals: but for the shore shells, including the minute species, there is scarcely anything left to be desired. The author describes 157 as new species: of the value of many of these there will be two opinions. Prof. Adams in his work on Jamaica shells, "Contributions to Conchology," pp. 84 *et seq.*, gives up the common opinion that species are natural groups, while genera, &c. are artificial: and as he believes that there are different *species* as well as varieties of mankind, it is natural that he should distinguish as species of shells what others might consider varieties, and as varieties what may be accidents of growth. To the discerning reader, however, this does not interfere with the extreme value of the work. In a branch of inquiry so overburdened with carelessly observed or recorded facts, the freedom from the usual sources of error is a matter of the first importance. Where a species has originated in a mere theory, as in the case of common types from the two oceans, the student is at once on his guard. Where it arises from deficiency of materials, as in the *Cæca*, additional knowledge will soon set the error right. And in the present state of our ignorance, to designate forms as species which will hereafter have to be united, is much more pardonable than to overlook differences, all of which should be carefully noted before we can obtain a *Natural* history of any single species*. There appear to be three stages in our progress towards truth. In the first, objects are united, simply because their differences are not appreciated: as when *Dione lupinaria* was considered a variety of *Venus dione*, Linn., simply because they were each spiny. In the second, minute differences are appreciated, while their harmonies are overlooked. Such is the present ordinary condition of conchological science, as represented in the *Achatinellæ*, *Cylindrellæ*, *Anomiadæ*, &c. In the third, species are reunited, with a full perception of the differences among them, from a greater knowledge of the range of variation of which living creatures are susceptible. This third stage, *when faithfully performed on sufficient evidence*, should not be spoken of as "confounding species," and is one of the greatest pieces of

* In the "Researches on the Foraminifera," Trans. Roy. Soc. 1855, p. 228, Dr. W. B. Carpenter states, that "*multitudes of species*" will be shown in the present Report to "have been instituted in various genera of *Californian* shells by the late Mr. C. B. Adams, whose identity is established by a more extended comparison of individuals." This sentence appears simply to embody the impression left by conversation, and not to do justice to the Professor. As I am answerable for the impression I made, I have to request that those who possess the Transactions will make the following corrections:—For "*multitudes of species*" read "*several species*," and for "*Californian shells*" read "*shells of Jamaica and Panama*."

service that can be rendered to science: when carelessly wrought, as when an author herds together the species of his neighbour, simply because he has not been able to examine them himself, it truly makes "confusion worse confounded." For the first great requirement in a scientific writer, patient and laborious accuracy, this, the last work of Prof. Adams (for he died in 1853) stands in the very foremost rank. The following is an analysis of its contents, for comparison with the fauna of the Gulf of California. It will be observed that the species are arranged in alphabetical order, which may sometimes prevent their affinities from being noted. The new species are described in Latin, with measurements, and with an accuracy which often makes it safer to identify shells from them alone, than from the showy plates and loose diagnoses of some works of the greatest pretensions.

Prof. C. B. Adams's Panama List.

N.B. True and falsely assigned habitats are both quoted: the reader will thus judge of the present state of the science. Original authorities are cited in *italics*. Added synonyms are enclosed in brackets [].

Name.	Station.	No. of Specimens.	Other Localities.
<i>Ovula avena</i> , Sow.	on small Gorgonia, l.s.*	6	Conchagua, <i>Cum.</i> ; Sta. Barbara, <i>Jewett.</i>
— <i>emarginata</i> , Sow. ....	.....	7	St. Elena, <i>Cum.</i>
— <i>neglecta</i> , n. s.	with <i>O. avena</i> .	13	
— <i>variabilis</i> , n. s.	on Gorgoniæ: coloured accordingly, l. s.	56	St. Juan, <i>Green</i> ; Sta. Barbara, <i>Jewett.</i>
—, sp. ....	.....	2	
[? = <i>O. variabilis</i> , var.]	.....	
<i>Cypræa arabicula</i> , Lam.	u. stones, 8–20 in. l. n.	7	Acapulco, <i>Humb.</i> ; Brazil, Ravenel; St. Elena & Real Llej., <i>Cum.</i>
— <i>cervinetta</i> , Kien.	u. stones, 15–20 in. l. s.	115	Antilles & Senegal, Kien.; Ind. Oc., Jay.
= <i>exanthema</i> , var., Hinds.	.....	
— <i>punctulata</i> , Gray	with <i>C. arabicula</i> .	335	Peru and N. Holland, Kien.
[? = <i>C. arabicula</i> , var.]	.....	
— <i>pustulata</i> , Lam.	under large stones, l. s.	28	China, Humphrey; Acapulco, <i>Humb.</i> ; Isl. Plata, <i>Cum.</i>
— <i>radians</i> , Lam. ....	.....	2	Adriatic, Wood; Acapulco, <i>Humb.</i> ; Chili, Ravenel; St. Elena, under stones, <i>Cum.</i>
= <i>C. oniscus</i> , Wood, err. typ.	.....	
— <i>rubescens</i> , Gray ....	.....	1	Galap., under stones, <i>Cum.</i>
— <i>sanguinea</i> , Gray ....	.....	1	St. Elena, u. s., <i>Cum.</i> ; Mexico, Sow.
<i>Erato scabriuscula</i> , Gray	under stones, l. w.	4	Mazatlan, <i>Jewett</i> ; Acapulco, <i>Sloat</i> ; St. Elena, <i>Cum.</i>
= <i>Marg. cypræola</i> , Sow.	.....	
= <i>M. granum</i> , Kien.	.....	
<i>Marginella minor</i> , n. s. ....	.....	10	
— <i>sapotilla</i> , Hinds	Moving quickly on liquid mud, above l.w.	40+	
<i>Mitra funiculata</i> , Rve. ....	.....	23	Is. Plata, in coral sand, 14 fm., <i>Cum.</i>
— <i>lens</i> , Wood ....	.....	24	Red Sea, Kien.; La Paz, <i>Rich.</i>
— <i>nucleola</i> , Lam. ....	.....	11	Java, Kien.
— <i>solitaria</i> , n. s.	under stones, l. w.	1	Panama, <i>Bridges.</i>
— <i>tristis</i> , Brod.	under stones, l. w.	28	St. Elena and Gal., <i>Cum.</i>
<i>Terebra elata</i> , Hinds ....	.....	4	Montija, 15 fm. coarse sand, <i>Hds.</i>
— <i>larvæformis</i> , <i>Hds.</i> ....	.....	2	St. Elena & Mte. Xti, 6–15 fm. sandy mud, <i>Hds.</i>
— <i>robusta</i> , <i>Hds.</i> ....	.....	5	8° 57'—21° 32', <i>Hds.</i>
— <i>specillata</i> , <i>Hds.</i> ....	.....	12	San Blas, <i>Hds.</i>

* The following abbreviations are used:—*l. w.* low water; *s.* spring tides; *n.* neap tides; *h.* high water; $\frac{1}{2}$ -*l.* half-tide; + above; — below; *u. s.* under stones, &c.

No.	Name.	Station.	No. of Specimens.	Other Localities.
25	<i>Terebra tuberculosa</i> , Hds.....		1	Papagayo, San Blas, Hds.
26	— <i>varicosa</i> , Hds.		1	Papagayo, Hds.
27	—, like <i>specillata</i>		2	
28	—, slender brown		5	
29	—, small olivaceous, white band		1	
30	—, small and delicate		1	
31	—, sp.....		1	
32	<i>Oliva angulata</i> , Lam.....		17	Nicoya, Cum.; Peru, Desh.
33	— <i>araneosa</i> , Lam.....		1	Magdalena, Ducl.
	[? = <i>O. venulata</i> , var.]			
34	— <i>inconspicua</i> , n. s.		4	
	[? = <i>O. nivea</i> , D'Orb.]			
35	— <i>pellucida</i> , Rve.		1	
36	— <i>porphyria</i> , Linn.		3	Brazil, Linn.; Panama, Lam.; La
	C. B. A. cites 42 references for this well-known species.			Green; sandy mud at low water, C
37	— <i>semistriata</i> , Gray		175	Salango, rapidly moving by hundred wet sand, Cum.
38	— <i>testacea</i> , Lam.		20	Real Llejos, sandy mud, 6 fm., Cum
39	— <i>undatella</i> , Lam.....		15	Sand and mud banks, l. w., Cum.
	= <i>Voluta tenebrosa</i> , Wood.			
40	— <i>venulata</i> , Lam.....		1	La Paz, Green.
	= <i>O. reticularis</i> , var. Rve.			
41	— <i>volutella</i> , Lam.....	in vast numbers, quickly crawling on wet sand.	4500	Mexico, California, Ducl.
	= <i>V. cærulea</i> , Wood.			
42	<i>Planaxis planicostata</i> , Sow.	under stones, h. w. — $\frac{1}{2}$ ft.	1200	Galapagos, Cum.
	= <i>Buccinum planaxis</i> , Wood.			
	= <i>Plan. canaliculata</i> , Duv.			
43	<i>Nassa canescens</i> , n. s.		1	
44	— <i>collaria</i> , Gould, MS.....		5	
45	— <i>corpulenta</i> , n. s.		17	
	? = <i>festiva</i> , Powis.			
46	— <i>gemmulosa</i> , n. s.		1	
47	— <i>glauca</i> , n. s.		32	
48	— <i>luteostoma</i> , Brod. & Sow...	on sand, in run. water, between tide-marks.	330	Senegal, Kien.; Real Llejos & Acapulco, Lesson.
49	— <i>nodifera</i> , Pws.		40	Galapagos, coral sand, 6–10 fm., Cum
50	— <i>pagodus</i> , Rve.....		22	B. Montija, Cum.; W. Africa, Kien
	= <i>Buccinum decussatum</i> , Kien. (nec Linn. nec Lam.)			Peru, Petit.
	= <i>Triton pagodus</i> , Rve.			
51	— <i>Panamensis</i> , n. s.	u. stones, above l. w.	1500	
52	— <i>proxima</i> , n. s.		1	Panama, Bridges.
	[? = <i>N. versicolor</i> , var.]			
53	— <i>scabriuscula</i> , Pws.	as in <i>N. luteostoma</i> .	380	Montija, sandy mud, 12 fm., Cum.
54	— <i>striata</i> , n. s.		2	
55	— <i>versicolor</i> , n. s.		500	
56	— <i>Wilseni</i> , n. s.		5	
57	<i>Buccinum crassum</i> , Hds.		1	G. Fonseca, Hds.
	= <i>Phos crassus</i> , Hds.			
58	— <i>distortum</i> , Bligh	crevices of rocks between l.w.s. & l.w.n.	95	N. Holland, Kien.; Chili, Desh.; Elena, Cum.
	= <i>Polia distorta</i> , Gray.			
	= <i>Columbella triumphalis</i> , Ducl.			
59	— <i>insigne</i> , Rve.....	under stones in sand	140	St. Elena, Cum.
	= <i>mutabile</i> , Val. [pars.]			
60	— <i>lugubre</i> , n.s.	under stones, l. w.	175	
61	— <i>pagodus</i> , Rve.	under stones, l. w.	18	
62	— <i>pristis</i> , Desh.	l. w.	6	San Blas, Burt; California, Des
	= <i>B. serratum</i> , Kien.	under stones, l. w. n.	275	St. Elena, Cum.

Name.	Station.	No. of Specimens.	Other Localities.
<i>Buccinum ringens</i> , Rve. (not Phil.)	under stones, l. w. n.	275	
— <i>sanguinolentum</i> , Ducl.....	under stones, l. w.	16	
— = <i>Pollia hæmastoma</i> , Gray.			
— = <i>B. Janellii</i> , Val.			
— <i>Stimpsonianum</i> , n. s.....	under stones, l. w.	19	
<i>Dolium ringens</i> , Swains.	under & between stones	8	9 by 7 in., Barnes. Adult, 2.3 in., C.B.Ad.;
— = <i>Malea latilabris</i> + <i>crassilabris</i> , Val. v. Syn.	extreme low water.		Quito Is., Guayaquil, <i>Don Pedro Abadea</i> ; Peru, <i>Capt. Skiddy</i> ; Payta, <i>Cum.</i>
<i>Monoceros brevidentatum</i> , Wood.	on and between rocks,	300	Peru, Chili, <i>Kien.</i> ; Payta, <i>Fontaine</i> ;
— = <i>Purp. cornigera</i> , Blainv.	$\frac{1}{2}$ -t. +		Xipixapi & Mte Xti, <i>Cum.</i> ; Monterey, <i>Rich</i> ; San Francisco, <i>Jewett</i> .
+ <i>P. ocellata</i> , Kien.			
+ <i>P. maculata</i> , Gray.			
— <i>cingulatum</i> , Wood	clefts of rocks, l. w.	75	W. Mexico, <i>Humboldt</i> .
<i>Purpura Carolensis</i> , Rve.	under stones and in	20	Charles Island, Galapagos, <i>Cum.</i>
[= <i>P. triangularis</i> , Blainv.]	crevices of rock, l. w.		
— <i>foveolata</i> , n. s.	under stones, l. w.	3	
[? = <i>P. biserialis</i> , jun].			
— <i>kiosquiformis</i> , Ducl.	on rocks and trees,	170	N. Holland, Ducl.; La Paz, <i>Green</i> .
	$\frac{1}{2}$ -t. to h. w. n.		
—, sp. ind.....		1	
[= <i>P. kiosquiformis</i> , var.			
= <i>P. scalariformis</i> , Ducl.]			
— <i>melo</i> , Desh.	sides and crevices of	150	Mte Xti, under stones, low water, <i>Cum.</i>
= <i>P. crassa</i> , Blainv.	rocks, $\frac{1}{2}$ - $\frac{3}{4}$ tide.		
= <i>P. melones</i> , Ducl.			
— <i>osculans</i> , n. s.....		2	
[? = <i>Rhizocheilus nux.</i>]			
— <i>tecta</i> , Wood	crevices of rock,	60	Chili, <i>Kien.</i> ; Real I. lejos, Less.; Panama, 10 fm. sandy mud, <i>Cum.</i>
= <i>P. callosa</i> , Sow.	l. w. n. — l. w. s.		
= <i>P. angulifera</i> , Ducl.			
= <i>Cuma sulcata</i> , Swains.			
= <i>Turbinella callosa</i> , Less.			
— <i>undata</i> , [quasi <i>Lam.</i>]	under stones, l. w. n.	180	Mte Xti, <i>Cum.</i> ; Acapulco, <i>Humb.</i>
[= <i>P. biserialis</i> , Blainv.]			
<i>Columbella atramentaria</i> , Sow....	under stones, l. w.	3	Chatham Island, Galapagos, <i>Cum.</i>
— <i>bicanalifera</i> , Sow.....		36	sandy mud, 10 fm., Galapagos, <i>Cum.</i>
— <i>Boivinii</i> , Kien.	pools in rocks, $\frac{1}{2}$ - $\frac{3}{4}$	50+	Nicoya, <i>Hinds</i> .
— <i>conspicua</i> , n. s. (? <i>Anachis</i>)		1	
— <i>costellata</i> , Brod. & Sow. ...	under stones, l. w.	25	Panama and Africa, Gray.
— <i>diminuta</i> , n. s. (<i>Anachis</i>)...	under stones, l. w.	19	
— <i>dorsata</i> , Sow.		1	Is. Muerte, Guayaquil, <i>Cum.</i>
— <i>fluctuata</i> , Sow.	under stones, l. w. n.	400	Nicoya, <i>Cum.</i> ; Peru, <i>Kien.</i>
= <i>C. suturalis</i> , Griff.			
— <i>fulva</i> , Sow.	under stones, l. w. +	3	
— <i>fuscata</i> , Sow.....	under stones, l. w. +	6	Panama, St. Elena, Mte Xti, <i>Cum.</i> ; San Blas, <i>Kien.</i> ; Acapulco, Less.
= <i>C. meleagris</i> , Kien.			
— <i>gibberula</i> , Sow.....		7	Bay Carac. and P. Portr., sandy mud, 11 fm., <i>Cum.</i> ; Chili, <i>Kien.</i>
— <i>gracilis</i> , n. s. (? <i>Anachis</i>) ...		7	
— <i>guttata</i> , Sow. (prim. non postea.)	under stones, l. w. +	150	East Indies, Ascension, Gorea, <i>Kien.</i> ; Java, <i>Leschenault</i> ; West Indies.
[= <i>Nitidella cribraria</i> , Lam.			
= <i>Buccinum parvulum</i> , Dkr.]		1	Pan. & Gal., u. s., <i>Cum.</i> ; Calif., <i>Kien.</i>
— <i>hæmastoma</i> , Sow.....		9	Pan., on dead shells, 10 fm., <i>Cum.</i> ; Mazatlan, Mke.
— <i>harpiformis</i> , Sow.....	under stones, l. w.		St. Elena, <i>Cum.</i>
= <i>C. cittharula</i> , Ducl.			Panama & Chiriqui, <i>Cum.</i>
— <i>labiosa</i> , Sow.....	under stones, l. w.	10	Is. Muerte, <i>Cum.</i>
— <i>lyrata</i> , Sow.	under stones, l. w.	19	
— <i>major</i> , Sow.	under stones, l. w.	30	
= <i>C. gibbosa</i> , Val.			
= <i>C. strombiformis</i> , var., Kien.			

No.	Name.	Station.	No. of Specimens.	Other Localities.
95	<i>Columbella modesta</i> , Powis = <i>Buccinum m.</i> , Pow. = <i>Truncaria m.</i> , H. & Ad.		80	Montija, muddy gravel, 7-17 fm., Cu Sta. Barbara, Jewett.
96	— <i>mæsta</i> , n. s. (? <i>Anachis</i>) ...	sticks & stones, $\frac{1}{2}$ -t. +	58	
97	— <i>nigricans</i> , Sow.	u. s., $\frac{1}{2}$ -t. — l. w.	620	Galapagos, Cum.
98	— <i>parva</i> , Sow.		1	Mte Xti, under stones, Cum.
99	— <i>pulchrior</i> , n. s. (? <i>Nitidella</i>)	under stones, l. w.	5	
100	— <i>pygmæa</i> , Sow.	under stones, l. w.	185	St. Elena, on dead shells, sandy m 10 fm., Cum.
101	— <i>rugosa</i> , Sow. = <i>C. Sowerbyi</i> , Ducl. = <i>C. bicolor</i> , Kien.	u. stones, $\frac{1}{2}$ -t. — l.w.n.	1500	Pan. & Xipix., Cum.; Real Llej., Mör
102	— <i>strombiformis</i> , Lam.		1	Is. Muerte, Cum.; Payta, Font.
103	— <i>tesselata</i> , n. s. (<i>Anachis</i>) ...	under stones, l. w.	27	
104	— <i>turrita</i> , Sow.		1	Montija & St. El., s. m., 10 fm., Cu
105	— <i>varia</i> , Sow. [non <i>varians</i> , Sow.]	under stones, l. w.	380	
106	—, sp.		1	
107	<i>Ricinula</i> ? <i>carbonaria</i> , Rve.	under stones, l. w.	70	Philippines, Jay.
108	— <i>jugosa</i> , n. s. (<i>Engina</i>)		1	
109	— <i>Reeviana</i> , C. B. Ad. = <i>Buccinum pulchrum</i> , Rve.	under stones, l. w.	110	Galapagos, Cum.
110	<i>Cassis abbreviata</i> , Blainv. = <i>C. lactea</i> , Kien.		7	Portugal, Bonanni; Acapulco, Rve.
111	— <i>coarctata</i> , Sow.		1	? N. Zealand, Sow.; Shores of Peru, Acapulco, Kien.; Gal. in crevices rocks, Cum.; San Juan, Green.
112	<i>Oniscia tuberculosa</i> , Rve.		2	Gal., clefts of rocks, l. w., Cum.; A ustralia, Jay; San Juan, Green.
113	<i>Conus brunneus</i> , Wood	clefts of rocks, l. w.	4	Gal., P. Portr., Pan., Cum.
114	— <i>gladiator</i> , Brod.	u. s. with sand, l. w.	70	
115	— <i>mahogani</i> , Rve.	crawling on very wet s., l. w. — $\frac{1}{2}$ -tide.	17	Salango, Cum.
116	— <i>nux</i> , Brod.		2	Galapagos, Cum.
117	— <i>princeps</i> , Linn. = <i>C. regius</i> , Chemn., Lam. = <i>C. lineolatus</i> , Val.	under stones, l. w.	9	Asia, Dillw.; Philippines, Jay; S Juan, Green; Mte Xti, & St. El., Cu
118	— <i>purpurascens</i> , Brod.	under stones, l. w.	12	Annaa, Sow.; San Blas, Hds.
119	— <i>regalitis</i> , Sow.	under stones, l. w.	9, 3 in.	Real Llejos, Cum.; Peru, Kien.
120	— <i>regularis</i> , Sow.		1	Nicoya & Peru, soft mud, 7 & 23 f Hds.; Philippines, Kien.; Guaymas, t
121	— <i>vittatus</i> , Lam.	l. w.	4	Pan. & Mont., coarse sd., 7-11 fm., Cu
122	<i>Strombus galea</i> , Wood = <i>S. galeatus</i> , Gray.		fragm.	Nicoya, reefs, l. w., Cum.; Peru, Gr
123	— <i>gracilior</i> , Sow.		1	Calif. & Tahiti, Jay; La Paz, Green
124	— <i>granulatus</i> , Swains.		7	India, Kien.; St. El. & Gal., sandym 6-8 fm., Cum.; La Paz, Green.
125	— <i>Peruvianus</i> , Swains.	sandy beach, l. w.	24	Caraccas, on reefs, Cum.; Peru & ? R
126	<i>Triton Chemnitzii</i> , Gray = <i>Argob. nodosum</i> , Chemn.	under stones, l. w.	9	[Sea, Du
127	— <i>constrictus</i> , Brod. ? = <i>T. decussatum</i> , Val.		4	Mte Xti & Xipix., sandy mud, 7-10 f [Cum.; Acap., H
128	— <i>fusoides</i> , n. s.		1	
129	— <i>gibbosus</i> , Brod.		5	Pan. & Mte Xti, coarse sand, 7 fm., Cu
130	— <i>lignarius</i> , Brod.		1	P. Portr. & Pan., sandy mud, 7-12 f Cum.; Mte Xti., Hds.
131	— <i>vestitus</i> , Hds. —, var. <i>senior</i>		4	Real Llejos, Nicoya & Honda, amo
132	<i>Ranella caelata</i> , Brod. = <i>R. semigranosa</i> , Kien. non Lam.	u. s., l. w. n. — l. w. s.	190	[rocks on shore, H

Name.	Station.	No. of Specimens.	Other Localities.
<i>Ranella nana</i> , Brod. & Sow.....	.....	2	Is. Panama, Phil., Sow.
— <i>nitida</i> , Brod.....	under stones, l. w.	300	Caraccas, <i>Cum.</i>
— <i>plicata</i> , Rve.....	.....	6	
<i>Murex dubius</i> , Sow.....	under stones, l. w.	72	
= <i>M. aculeatus</i> , Wd., non Lam.	.....	
— <i>erosus</i> , Brod.....	under stones, l. w.	2	
— <i>radix</i> , Schroet.....	about stones, with	100	Caraccas, <i>Cum.</i> ; Acapulco, <i>Humb.</i>
= <i>melanomathos</i> , Dillw. pars.	sandy mud, l. w.	5½ in.	
[Non <i>M. ambiguus</i> , Rve.]	.....	22 oz.	
— <i>rectirostris</i> , Sow.....	.....	1	Xipix., sandy mud, 11 fm., <i>Cum.</i>
— <i>recurvirostris</i> , Brod.....	.....	1	Nicoya, sandy mud, 9 fm., <i>Cum.</i>
— <i>regius</i> , Swains.....	crevices of rocks,	18+	Peru, Bligh; Acap., <i>Humb.</i>
= <i>M. tricolor</i> , Val.	l. w. n.-l. w. s.		
— <i>salebrosus</i> , King.....	under stones, l. w.	14	Southern coast of S. A., Sow.
? — <i>vibex</i> , Brod.....	under stones.	13	St. Elena, sandy mud, 6-12 fm., <i>Cum.</i>
— <i>vittatus</i> , Brod.....	.....	1	I. Muerte, sandy mud, 11 fm., <i>Cum.</i>
<i>Pyruia patula</i> , Brod. & Sow.....	.....	1+	Caraccas, mud banks, <i>Cum.</i>
<i>Ficula ventricosa</i> , Sow.....	.....	8	San Blas, Kien.; India & China, Desh.
= <i>Bulla decussata</i> , Wood.	.....	
<i>Fusus bellus</i> , n. s.....	.....	1	
<i>Fasciolaria granosa</i> , n. s.....	stones in mud, l. w.	7	Peru, Kien.
<i>Turbinella caestus</i> , Brod.....	sand beach, l. w.	2	Caraccas, mud in rocks, <i>Cum.</i>
— <i>castanea</i> , Gray.....	crevices of rocks, l. w.	32	
= <i>T. acuminata</i> , Rve.	.....	
— <i>cerata</i> , Wood.....	crev. of rocks & u. s.	.....	Maz., Kien.; Galapagos, <i>Cum.</i>
— <i>rudis</i> , Rve.....	.....	30	
— <i>spadicea</i> , Rve.....	.....	15	
<i>Cancellaria affinis</i> , n. s.....	.....	3	
— <i>clavatula</i> , Sow.....	.....	8	Pan. & Payta, sandy mud, 7 fm., <i>Cum.</i>
— <i>decussata</i> , Sow.....	.....	2	Pan., Puert. Por., s.m. 10-13 fm., <i>Cum.</i>
— <i>goniostoma</i> , Sow.....	.....	1	Conchagua, S. Salvador, sd., 8 fm., <i>Cum.</i>
— <i>mitriformis</i> , Sow.....	.....	5	1 sp., sandy mud, <i>Cum.</i>
+ <i>C. uniplicata</i> , Sow.....	.....		2 sp. sand, 10 fm., <i>Cum.</i>
— <i>pulchra</i> , Sow.....	.....	2	Sand, 8-10 fm., St. Elena, <i>Cum.</i>
— <i>pygmæa</i> , n. s.....	.....	1	
— <i>solida</i> , Sow.....	.....	1	R. Llej. & St. Elena, 8-10 fm., sd., <i>Cum.</i>
— <i>tesselata</i> , Sow.....	.....	2	Carac., St. El., Xip., s.m. 7-10 fm., <i>Cum.</i>
<i>Pleurotoma aterrima</i> , Sow.....	under stones, l. w.	14	Mte Xti, <i>Cum.</i>
— <i>atrior</i> , n. s.....	.....	1	
[? = <i>P. aterrima</i> , var. <i>Melchersi</i>.]	.....	
— <i>bicanalifera</i> , Sow.....	.....	1	Montija, sandy mud, 10 fm., <i>Cum.</i>
— <i>collaris</i> , Sow.....	.....	4	Caraccas, muddy sand, 8 fm., <i>Cum.</i>
— <i>concinna</i> , n. s. (? <i>Mangelia</i>)	.....	1	
— <i>corrugata</i> , Sow.....	.....	3	Mont. & P. Portr., sdy. md., 10 fm., <i>Cum.</i>
+ <i>P. turricula</i> , Sow.	.....	
— <i>discors</i> , Sow.....	.....	5	I. Plata, coral sand, 17 fm., <i>Cum.</i>
[? + <i>P. aterrima</i> , Sow.]	.....	
— <i>duplicata</i> , Sow.....	.....	1	P. Portr. & Mont., sdy. md., 10 fm., <i>Cum.</i>
— <i>?excentrica</i> , Sow.....	.....	1	Coral sand, 6 fm.; Galap., <i>Cum.</i>
— <i>exigua</i> , n. s.....	.....	1	
— <i>gemmulosa</i> , n. s.....	.....	1	
— <i>grandimaculata</i> , n. s.....	.....	2	Philippines, <i>Cum.</i> MS.
= <i>P. zonulata</i> , teste Cum.	.....	
— <i>incrassata</i> , Sow.....	.....	1	Pan. & Mte Xti, sdy. md., 6-10 fm., <i>Cum.</i>
= <i>P. Botte</i> , Kien.	.....	
— <i>nigerrima</i> , Sow.....	.....	3	Carac., sandy mud, 6-10 fm., <i>Cum.</i>
+ <i>P. cornuta</i> , Sow.	.....	
— <i>obeliscus</i> , Rve.....	.....	1	
— <i>olivacea</i> , Sow.....	.....	8	Salango, St. Elena, sdy. md., 5-12 fm., <i>Cum.</i> ; mud, 4-7 fm., Nicoya, <i>Hds.</i>
[Comp. <i>P. funiculata</i> , Sow.]	.....	
— <i>pallida</i> , Sow.....	.....	12	P. Portr., sandy mud, 13 fm., <i>Cum.</i>

No.	Name.	Station.	No. of Specimens.	Other Localities.
180	<i>Pleurotoma rigida</i> , Hds. ....	.....	20	
181	— <i>rudis</i> , Sow. ....	.....	2	Mte Xti, under stones, <i>Cum.</i>
182	— <i>rustica</i> , Sow.	under stones, l. w.	10	Xipixapi, <i>Cum.</i>
	= <i>P. thiarella</i> , Kien.			
183	— <i>striosa</i> , n. s. ....	.....	13	
184	— <i>zonulata</i> , Rve. ....	.....	2	Mte Xti & Xipix., sand and grav.
	= <i>P. cincta</i> , Sow., non Lam.			7 fm., <i>Cum.</i>
185	—, sp. ....	.....	1	
186	—, sp. ....	.....	1	
187	<i>Mangelia</i> , sp. ....	.....	1	
188	—, sp. ....	.....	1	
189	—, sp. ....	.....	1	
190	—, sp. ....	.....	1	
191	— <i>neglecta</i> , n. s. ....	.....	4	
192	— ? <i>sulcosa</i>	under stones, l. w. n. —	170	
	? = <i>Columbella sulcosa</i> , Sow.			Annaa, & Ld. Hood's Is., <i>Cum.</i>
193	<i>Cerithium adustum</i> , Kien. (plate)	wet sand, u. s., $\frac{1}{2}$ -tide.	206	Indian Ocean, Red Sea, Kiener.
	= <i>C. maculosum</i> , Kien. text.			
194	— <i>assimilatum</i> , n. s.	u. s., sponges, l. w., marine plants, &c.	8	
195	— <i>bimarginatum</i> , n. s. ....	.....	2	
196	— <i>famelicum</i> , n. s. ....	.....	17	
	N.B. The description does not agree with the type sp. in Mus. Cum., and accords better with <i>C. ? uncinatum</i> , Gmel., also found at Mazatlan.			
197	— <i>gemmatum</i> , Hds. ....	.....	19	
198	— ? <i>interruptum</i> , Mke.	on & under rks. & st., $\frac{1}{2}$ -tide — l. w. n.	1100	
	[= <i>C. Gallapaginis</i> , Sow.: non <i>C. interruptum</i> , Sow. quasi Gould.]			
199	—, sp. ind. ....	.....	30	
	= <i>C. interruptum</i> , var.			
200	— <i>irroratum</i> , Gould	rock-pools, $\frac{1}{2}$ -tide +	820	
	= <i>C. stercusmuscarum</i> , Val.			
201	— <i>neglectum</i> , n. s.	u. s. in dead shells & sponges, l. w.	33	
202	— <i>Pacificum</i> , Sow. ....	.....	1	Cumana, <i>Humb.</i>
	= <i>C. Humboldti</i> , Val.			
203	— <i>pauperculum</i> , n. s. ....	.....	2	
204	— <i>pulchrum</i> , n. s.	$\frac{1}{2}$ buried in muddy sd. under bushes at h. w.	125	
205	— <i>Reevianum</i> , n. s.	ditto ditto	190	
	[= <i>Cerithidea Montagnei</i> , D'Orb.]			
206	— <i>validum</i> , n. s.	ditto ditto	250	
	[= <i>Cerithidea varicosa</i> , Sow.]			
207	<i>Triphoris alternatus</i> , n. s. ....	.....	5	
208	— <i>inconspicuus</i> , n. s.	under stones, l. w.	16	
209	— <i>infrequens</i> , n. s. ....	.....	2	
210	<i>Turritella Banksii</i> , Rve.	among & under st., in calc. sd., l. w. n. — l. w. s.	350	Sandy mud, 10 fm., <i>Cum.</i>
	[? = <i>tigrina</i> , Kien.]			
211	<i>Cæcum diminutum</i> , n. s. ....	.....	1	
	[= <i>firmatum</i> , jun.]			
212	— <i>eburneum</i> , n. s. ....	.....	22	
	[= <i>firmatum</i> , var.]			
213	— <i>firmatum</i> , n. s.	85	
214	— <i>læve</i> , n. s.	2	
215	— <i>laqueatum</i> , n. s.	2	
216	— <i>monstrosum</i> , n. s.	7	
	[= <i>firmatum</i> , adol.]			

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<i>Cæcum parvum</i> , n. s.	1	
[? = <i>C. undatum</i> , jun.]		
— <i>pygmæum</i> , n. s.	2	
[= <i>C. firmatum</i> , jun.]		
<i>Chemnitzia aculeus</i> , n. s.	4	
— <i>acuminata</i> , n. s. (? <i>Chrysallida</i>) .....	.....	1	
— <i>affinis</i> , n. s. ....	.....	2	
— <i>clathratula</i> , n. s. (<i>Chrysallida</i>) .....	.....	10	
— <i>communis</i> , n. s. (<i>Chrysallida</i>)	under stones, l. w.	90	
— <i>gracilior</i> , n. s. ....	.....	2	
— <i>major</i> , n. s. ....	.....	1	
— <i>marginata</i> , n. s. (<i>Chrysallida</i>) .....	.....	2	
— <i>Panamensis</i> , n. s.	sand, $\frac{1}{2}$ -t. — h. w.	11	
— <i>similis</i> , n. s. ....	.....	2	
— <i>striosa</i> , n. s. ....	.....	1	
— <i>turrita</i> , n. s. ....	.....	3	
? <i>Littorina angiosoma</i> , n. s. (? <i>Fossarus</i>.) .....	.....	3	
— <i>aspera</i> , <i>Phil.</i>	ledges or large pieces of rock, h. w. +	2400	"Sitcha, San Salvador, Mex.," <i>Phil.</i>
— —, var. ....	.....	33	
— <i>atrata</i> , n. s.	in or near cavities of rocks, $\frac{1}{2}$ -tide — h. w.	3300	
— <i>conspersa</i> , <i>Phil.</i>	large pieces of rk., h. w.	320	Real Llejos.
? — <i>excavata</i> , n. s. (<i>Fossarus</i>) .....	.....	1	
— <i>fasciata</i> , <i>Gray</i>	on trks. & brs. of small trees, $\frac{1}{2}$ -t. — h. w.	160	
? — <i>foveata</i> , n. s. (? <i>Fossarus</i>) .....	.....	2	
? — <i>megasoma</i> , n. s. (? <i>Fossarus</i>) .....	.....	1	
? — <i>parvula</i> , <i>Phil.</i> , var. <i>dubiosa</i>	cav. of rough ledge of rocks, h. w. +	600	
[Comp. <i>L. Philippii</i>.] .....	.....	
— <i>pulchra</i> , <i>Sow.</i>	on mangroves, growing from mud, h. w. —	11	
— <i>puncticulata</i> , <i>Phil.</i>	on pieces of rk., h. w.	80	Real Llejos.
[= <i>conspersa</i> , var.] .....	.....	
— <i>varia</i>	on trunks & branches of trees, $\frac{1}{2}$ -t. — h. w.	300	"Pan., Guay., Cusma, Peru," <i>Phil.</i> ; Chiloe, Petit.
<i>Rissoa clandestina</i> , n. s. ....	.....	2	
— <i>firmata</i> , n. s. ....	.....	1	
— <i>fortis</i> , n. s.	under stones, l. w.	31	
? — <i>inconspicua</i> , n. s. (non <i>Ald.</i>) .....	.....	1	
— <i>infrequens</i> , n. s. ....	.....	1	
— <i>Janus</i> , n. s. ....	.....	2	
— <i>notabilis</i> , n. s. ....	.....	1	
— <i>scalariformis</i> , n. s. ....	.....	1	
—, sp. ....	.....	1	
? <i>Cingula inconspicua</i> , n. s. ....	.....	3	
— <i>paupercula</i> , n. s. ....	.....	4	
? — <i>terebellum</i> , n. s. ....	.....	1	
? — <i>turrita</i> , n. s. ....	.....	1	
? <i>Litiopa saxicola</i> , n. s. (<i>Cingula</i>)	under stones, l. w.	7	
? <i>Adeorbis abjecta</i> , n. s. (<i>Fossarus</i>) .....	.....	40	
<i>Vitrinella concinna</i> , n. s. ....	.....	1	
— <i>exigua</i> , n. s. ....	.....	7	
— <i>Janus</i> , n. s. ....	.....	1	
— <i>minuta</i> , n. s. (<i>Teinostoma</i>) .....	.....	4	
— <i>modesta</i> , n. s. ....	.....	1	
— <i>Panamensis</i> , n. s. ....	.....	24	
— <i>parva</i> , n. s. ....	.....	13	
— <i>perparva</i> , n. s. ....	.....	3	
— <i>regularis</i> , n. s. ....	.....	1	

No.	Name.	Station.	No. of Specimens.	Other Localities.
267	<i>Vitrinella seminuda</i> , n. s. ....	.....	1	
268	— <i>tricarinata</i> , n. s. ....	.....	1	
269	— <i>valvatoides</i> , n. s. ....	.....	3	
270	<i>Solarium</i> , sp. (like <i>granulatum</i>)..	.....	3	
271	—, sp. (like <i>quadriceps</i>) .....	.....	3	
272	—, sp. (? = <i>Torinia variegata</i>) .....	.....	6	
273	<i>Trochus catenulatus</i> , Phil. (Modulus.) .....	.....	23	
274	— <i>coronulatus</i> , n. s. (? <i>Omphalius</i>.) .....	.....	2	
275	— <i>Leanus</i> , n. s.	under stones, l. w.	7	
276	— <i>lima</i> , Phil.	u. s., l. w. n. — l. w. s.	75	Sta. Barbara, Jewett.
277	— <i>lividus</i> , Phil. (Modulus)....	.....	3	Acapulco, Jewett.
	[= <i>either disculus</i> , Phil. or <i>dorsuosus</i> , Gld., teste types.]			
278	— <i>Panamensis</i> , Phil.	under stones, l. w.	65	
279	— <i>pellis-serpentis</i> , Wood.....	on or under large st.	505	Acapulco, Humb.; California, Ph
	= <i>T. strigilatus</i> , Phil.	or rks., $\frac{1}{2}$ -tide. Most active at twilight.		
280	— <i>reticulatus</i>	under stones, l. w. n.	600	
	[? = <i>viridulus</i> , Gmel.]			
281	<i>Turbo Buschii</i> , Phil.	on or under stones,	180	
	[= <i>Uvanilla inermis</i> , Kien.]	l. w. n. — l. w. s.		
282	? — <i>phasianella</i> , ? n. s. ....	.....	112	
	? = <i>Litorina phasianella</i> , Phil.			
283	— <i>rutilus</i> , n. s. ....	.....	1+	
284	— <i>saxosus</i> , Wood	rocks, l. w. n.	160	
285	<i>Scalaria hexagona</i> , Sow. ....	.....	1	Acap., Moffat.
286	— <i>obtusa</i> , Sow. ....	.....	1	St. Elena, sandy mud, 6 fm., Cum
287	—, sp. ....	.....	2	
288	—, sp. ....	.....	1	
289	—, sp. ....	.....	1	
290	<i>Eulima iota</i> , n. s. ....	.....	2	
291	— <i>recta</i> , n. s. ....	.....	5	
292	— <i>solitaria</i> , n. s.	on <i>Holothuria</i> .	1	
293	<i>Pyramidella</i> , sp. ....	.....	1	
294	— <i>conica</i> .....	.....	1	
295	<i>Natica Chemnitzii</i> , Pfr. (non Mke.)	soft mud, l. w.	60	Guaymas, Green.
	[= <i>maroccana</i> , Chemn.]			
296	— ? <i>lurida</i> , Phil.	{ sand beach, $\frac{1}{2}$ buried in sand, $\frac{1}{2}$ -t. —. The horny opercula were eaten by rats, off Cape Horn.	8	
297	— <i>otis</i> , Br. & Sow.		11	
	[? = <i>Gallapagosa</i> , Récl.]			
298	— ? <i>Salangonensis</i> , Récl.	sd. mud, $\frac{1}{2}$ -t. — l. w.	10	
299	— <i>Souleyetiana</i> , Récl. ....	.....	4	
300	— ? <i>virginica</i> , Récl. (= ? <i>uber</i> , Val. teste Mus. Gld.) .....	.....	40	
301	—, sp.	wet sand, $\frac{1}{2}$ -t. — l. w.	200	
302	—, sp. (= <i>uber</i> , Val.)	wet sand.	2	Callao, Petit.
303	—, sp. like <i>Haneti</i> .....	.....	1	
304	<i>Nerita scabricosta</i> , Lam. (non <i>Dessert</i> = <i>costata</i>). = <i>ornata</i> , Sow. + <i>Deshayesii</i> , Récl.	rocks, especially crevices, h. w. — $\frac{3}{4}$ -t. young, above h. w.	400	Real Llejos, Sow.; California, P Is. Timor, Récl.
305	—, sp. = <i>Bernhardi</i> , Récl.	rks. & st., $\frac{1}{2}$ -t. — l. w. n.	2800	
306	<i>Neritina Guayaquilensis</i> , Sow. ... + <i>intermedia</i> , Sow. teste Récl.	above highest tides, among sticks and leaves, in muddy places overflowed by fresh water.	90	Real Llejos, Guayaquil, Cum.

Name.	Station.	No. of Specimens.	Other Localities.
<i>Neritina picta</i> , Sow. (non <i>Hæning</i> .) [N.B. Lieut. Green's specimens, quoted from San Miguel as of extraordinary size, are probably <i>N. cassiculum</i> , Sow.]	strictly marine: sticks and stones in grove, $\frac{1}{2}$ -t. +: dirty places on rocks, $\frac{1}{2}$ -t. —.	290	Pan., on mud-bank partially overflowed with fresh water, <i>Cum</i> .
<i>Pedipes angulata</i> , n. s.	under stones, h. w.	90	
<i>Auricula acuta</i> , D'Orb.	under stones, h. w.	3	Guayaq., near brackish water, <i>Fontaine</i> .
= <i>Marinula Recluziana</i> , Cum. MS.			
— <i>concinna</i> , n. s.	on short mangrove suckers, h. w.	74	
— <i>infrequens</i> , n. s.	under stones, h. w.	6	
— <i>Panamensis</i> , n. s.	u.s., h. w., or crawling over wet stones.	650	
— <i>stagnalis</i> , D'Orb.	under heap of stones, above h. w.	36	Guayaquil, marsh and even fresh water, <i>Font.</i> ; I. Tumaca, <i>Cum</i> . MS.
+ <i>papillifera</i> , Küst.	on and under stones and rocks, h. w.	800	
— <i>Tabogensis</i> , n. s.			
— <i>trilineata</i> , n. s.		1	
—, sp.	under stones, h. w.	2	
— <i>Truncatella Bairdiana</i> , n. s.	under heap of stones, h. w. s.	400	
?? — <i>dubiosa</i> , n. s. (? <i>Assimineæ</i>)	under heap of stones, h. w. s.	550	
<i>Bulla</i> (Tornatina) <i>infrequens</i> , n. s.		2	
— (Cylichna) <i>luticola</i> , n. s.	on liquid mud, l. w.	28	
— <i>punctulata</i> , Ad.		25	Acap., <i>Jewett</i> ; sandy mud, 10 fm., <i>Cum</i> .
= <i>punctata</i> , Ad.			
—, sp.		1	
<i>Vermetus glomeratus</i> , (quasi) <i>Lam. pars</i> .	rocks & stones, l. w. n. attached by end of spiral portion.	25+	
[= <i>Aletes ? centiquadrus</i> , Val.]			
— <i>Panamensis</i> , <i>Rouss</i> .	rocks & stones, l. w. n.	10+	attached by one side of all the whirls.
<i>Stomatella inflata</i> (? <i>Sigaretus</i>)		1	
<i>Hipponyx</i> , sp. (? <i>subrufa</i>)		2	
— ? <i>barbata</i>	stones and shells, l. w.	12	Coral reefs, Toubouai, Soc. Is., <i>Cum</i> .
Comp. <i>Pileopsis pilosus</i> , Desh. Guér. Mag. 1832, pl. 19.			
— <i>Panamensis</i> , <i>nom. prov.</i> ...	stones and shells, l. w.	14	Lobos Is., on stones in coarse sand, 17 fm., <i>Cum</i> .
[= <i>antiquatus</i> , Linn.]			
— <i>radiata</i> , Sow. (non <i>Quoy</i> , nec <i>Lam</i> .)	stones, l. w.	16	Panama, Galapagos, on rocks, <i>Cum</i> .
[= <i>Grayanus</i> , Mke.]			
<i>Calyptræa aberrans</i> , n. s.		1	
[? = <i>Crep. unguiformis</i> , var.]			
— (Syphopatella) <i>aspera</i> , n. s.	under stones, l. w.	3	
[= <i>Galerus</i> .]			
— <i>cepeacea</i> , Brod.	dead shells, l. w.	4	sandy mud, 11 fm., Is. Muerte, <i>Cum</i> .
— <i>conica</i> , Brod.		12	Xipix., Sal., on shells, deep water, <i>Cum</i> .
— <i>dentata</i> , Mke.		8	
= <i>rugosa</i> , Rvc. non Desh.			
= <i>Crucibulum imbricatum</i> , var.]			
— (Calypeopsis) <i>hispida</i> , Brod.	under stones, l. w.	20	Is. Muerte, on dead shells, sandy mud, 12 fm., <i>Cum</i> . [D'Orb.
[= <i>Cruc. spinosum</i> , pars.]			
— <i>imbricata</i> , Brod.		2	on st., sdy. md., 6–10 fm., <i>Cum</i> .; Payta,
— <i>maculata</i> , Brod. (non <i>Quoy</i>)		2	Is. Muerte, on dead shells, in sandy mud, 11 fm., <i>Cum</i> .
[= <i>Cruc. spinosum</i> , pars.]			
— <i>planulata</i> , n. s.	on oyster, $\frac{1}{2}$ -t. —	1	
— <i>radiata</i> , Brod.		10	Caraccas, sdy. mud on dead shells, 7–14 fm., <i>Cum</i> .

No.	Name.	Station.	No. of Specimens.	Other Localities.
340	<i>Calyptrea</i> (<i>Syphopatella</i>) <i>regularis</i> , n. s. [= <i>Galerus mammillaris</i> , Brod.]	.....	3	
341	— <i>umbrella</i> , <i>Desh.</i> = <i>Crucibulum rude</i> , Brod.	.....	1	Pan. and Real Llej., under stones, Guayaq., Jay.
342	— ?? <i>unguis</i> , <i>Brod.</i>.....	.....	1	
343	<i>Crepidula cerithicola</i> , n. s. [= <i>C. onyx</i> , jun.]	on <i>Cerith. stercus-muscarum</i> .	45	
344	— <i>echinus</i> , <i>Brod.</i> [= <i>C. aculeata</i> , var.]	under stones, l. w.	18	Lobos Is., <i>Cum.</i>
345	— <i>excavata</i> , <i>Brod.</i>.....	.....	1	Real Llej., <i>Cum.</i> ; Chili, <i>Desh.</i>
346	— ? <i>hepatica</i> , <i>Desh.</i> [= <i>C. onyx</i> , Sow.]	on <i>Strombus</i> , <i>Conus</i> , & <i>Cuma</i> , &c.	28	C. G. Hope, Krauss.
347	— <i>incurva</i> , <i>Brod.</i>	living shells, l. w. +	120	St. Elena and Xipix., on dead shell 10 fm., <i>Cum.</i>
348	— <i>Lessonii</i> , <i>Brod.</i> [= <i>C. nivea</i> , var.]	under stones, l. w.	80	I. Muerte, <i>Cum.</i>
349	— <i>squama</i> , <i>Brod.</i>	u. s., & in shells, l. w.	35	
350	— <i>unguiformis</i> , <i>Lam.</i> = <i>C. Italica</i> , <i>Defr.</i> = <i>C. plana</i> , <i>Say.</i> = <i>C. calceolina</i> , <i>Desh.</i> [Perhaps = <i>C. nivea</i> , var.: but v. B. M. Maz. Cat. p. 284.] Fossil in Italy, Sicily, Bordeaux, Dax, Touraine.	in dead shells, near $\frac{1}{2}$ -t. level.	...	Mediterranean, <i>Desh.</i> ; Tunis & Alg. <i>M'Andr.</i> ; Senegal, Potiez; M. <i>Mighels</i> ; Carolina, &c., <i>Say</i> ; Jam. <i>C.B.Ad.</i> ; Is. Chiloe, <i>Cum.</i> ; Maza <i>Liverpool Col.</i>
351	— <i>nivea</i> , n. s. [+ <i>C. squama</i> + <i>C. Lessonii</i> + <i>C. striolata</i> .]	under stones, l. w.	45	
352	— <i>osculans</i> , n. s. ....	.....	1	
353	— <i>rostrata</i> , n. s. = <i>C. adunca</i> , Sow. = <i>C. solida</i> , Hds. = <i>C. rostriformis</i> , Gld. = <i>C. uncata</i> , Mke.	.....	5	
354	<i>Fissurella æqualis</i> , <i>Sow.</i>.....	.....	5	St. Elena, on dead shells, 6-10 fm., <i>Cum.</i>
355	— <i>alta</i> , n. s. ....	.....	26	
356	— <i>macrotrema</i> , <i>Sow.</i>.....	.....	5	Gal., Real Llej., Lobos Is. Lambeye under stones on shore, <i>Cum.</i>
357	— <i>microtrema</i> , <i>Sow.</i> [= <i>F. rugosa</i> , var.]	.....	10	Real Llej., under stones, l. w., <i>Cum.</i>
358	— <i>mus</i> , <i>Rve.</i>.....	.....	8	
359	— <i>nigropunctata</i> , <i>Sow.</i>	on rocks, $\frac{1}{2}$ -t. —	95	Gal. and Lobos Is., under stones, <i>Cum.</i>
360	— <i>ostrina</i> , <i>Rve.</i>.....	.....	3	
361	— <i>virescens</i> , <i>Sow.</i>	ledge of smooth, exposed rocks, $\frac{1}{2}$ -t. — l. w.	142	
362	<i>Siphonaria characteristicæ</i> , <i>Rve.</i> [= <i>S. gigas</i> , var.]	on rocks, $\frac{1}{2}$ -t. +	70	
363	— <i>costata</i> , <i>Sow.</i>.....	.....	1	Guacomayo, on exposed rocks, l. w., <i>Cum.</i>
364	— <i>gigas</i> , <i>Sow.</i>	on rocks, $\frac{1}{2}$ -t. +	220	Gal. Is., Jay; Peru, Voy. Venus.
365	— <i>maura</i> , <i>Sow.</i>	ledges of rocks, $\frac{1}{2}$ -t. +	200	
366	— ? <i>pica</i> , <i>Sow.</i>.....	.....	3	Acapulco, Sow., on exposed rocks.
367	<i>Lottia</i> ? <i>patina</i> , <i>Esch.</i> [= <i>Acmæa mesoleuca</i> , var.]	on & under stones, l. w. n.	34	
368	—, sp.	under stones, $\frac{1}{2}$ -tide	45	
369	—, sp.	under stones, $\frac{1}{2}$ -tide	20	
370	—, sp. ....	.....	11	
371	? <i>Patella</i> , sp.	rocks, $\frac{1}{2}$ -t.	16	
372	<i>Chiton clathratus</i> , <i>Rve.</i>	under stones, l. w.	12	
373	— <i>dispar</i> , <i>Sow.</i>	under stones, l. w. n.	100	Is. Saboga, <i>Cum.</i>
374	— ? <i>luridus</i> , <i>Sow.</i>	under stones, l. w.	3	St. Elena, on stones, 5 fm., <i>Sow.</i>

Name.	Station.	No. of Specimens.	Other Localities.
<i>Chiton pulchellus</i> , Gray	under stones, $\frac{1}{2}$ buried in sand, near l. w. n.	80	Arica, <i>Hennah</i> ; Islay, 30 fm. +, <i>D'Orb.</i>
— <i>Stokesii</i> , Brod.	under stones, l. w. n.	40+	St. Elena, <i>Cum.</i> ; Arica & Islay, <i>D'Orb.</i>
<i>Anomia lampe</i> , Gray	l. w.	1	La Paz; and Monterey, 60 fm., <i>Rich.</i>
— <i>tenuis</i> , n. s.	l. w.	3	
—, sp.		1	
<i>Ostrea</i> , sp. (a)	rocks, $\frac{1}{2}$ -t.	6	
—, sp. (b)	rocks, $\frac{1}{2}$ -t.	3	
[? = <i>O. iridescens</i> , Gray.]			
—, sp. (c)	rocks, shells, &c., $\frac{1}{2}$ -t.	15	
[? not <i>O. Columbiensis</i> , Hanl. = <i>O. conchaphila</i> .]			
—, sp. (d)	in clusters.	35	
[? = <i>O. Virginica</i> .]			
—, sp. (e)	rocks & stones, $\frac{3}{4}$ - $\frac{1}{2}$ t.	330	
small, plicated: animal bitter.			
<i>Spondylus</i> ? <i>Lamarckii</i> (non Sow.)		com.	La Paz, <i>Green.</i>
[= <i>S. calcifer</i> .]			
—, sp.		1	
<i>Pecten inca</i> , <i>D'Orb.</i>		8 v.	St. Elena, Salango, sandy mud, 6-10 fm., <i>Cum.</i> ; Calapan, Philippines, Sow.
[= <i>P. tumidus</i> , Sow., non Turt.]			
[= <i>P. ventricosus</i> , Sow.]			
— <i>Tumbezensis</i> , <i>D'Orb.</i>		2 v.	soft mud, 5 fm., <i>Tumbez, Cum.</i>
= <i>P. aspersus</i> , Sow., non Lam.			
<i>Lima angulata</i> , Sow.		4	Carac., sandy mud, 12-20 fm., <i>Cum.</i>
— <i>Pacifica</i> , <i>D'Orb.</i>	on reef.	3	Lord Hood's Island, under coral rocks; Panama, sandy mud; Guayaquil; Guacomayo, under stones, <i>Cum.</i>
= <i>L. arcuata</i> , Sow., not Geinitz.			
<i>Avicula</i> ? <i>margaritifera</i> .		2	
[? = <i>Margaritiphora fimbriata</i> .]			
— <i>sterna</i> , Gould	on Gorgonia, l. w. s.	10	
<i>Perna</i> , sp. (a) (= <i>Chemnitzianum</i>)	u. s., & in crev. rks., l. w.	130	La Paz, <i>Green.</i>
—, sp. (b)	u. s., & in crev. rks., l. w.	30	
<i>Pinna maura</i> , Sow.		1	muddy banks, <i>Cum.</i>
— <i>tuberculosa</i> , Sow.	crevices of rocks, l. w.	1	muddy banks, <i>Cum.</i>
<i>Mytilus</i> , sp. (a)		4	
<i>Lithodomus</i> , sp. (a)	in thick shells, $\frac{1}{2}$ t. - l. w.	20	
<i>Modiola</i> ? <i>semifusca</i> , Sow. (non <i>Lam. teste Hanl.</i>).		35	
= <i>M. Braziliensis</i> , Lam.			
= <i>Mytilus Guaiensis</i> , Küst.			
<i>Modiola</i> , sp. (a)	crev. of rks., $\frac{1}{2}$ t. - l. w.	6	
— (b)	crev. of rks., $\frac{1}{2}$ t. - l. w.	35	
— (c)		4	
— (d)		2	
— (e)	in soft stones, near $\frac{1}{2}$ t.	2	
<i>Chama Buddiana</i> , n. s.	ledges of rock, l. w. +	6	Guaymas, <i>Green.</i>
[The specimen in Dr. Gould's col., supposed to be the above, is <i>C. ? frondosa</i> , var. <i>fornicata</i> .]			
— <i>corrugata</i> , Brod.		2 v.	Real Llej., on stones, l. w., <i>Cum.</i>
— <i>echinata</i> , Brod.	rocks, near l. w.	15	Puert. Port., <i>Cum.</i>
<i>Nucula Elenensis</i> , Sow.		20 v.	St. Elena, sandy mud, 6 fm., <i>Cum.</i>
— <i>exigua</i> , Sow.		1 v.	Caraccas, sandy mud, 9 fm., <i>Cum.</i>
— <i>polita</i> , Sow.		10 v.	Sand, 7 fm., <i>Cum.</i>
<i>Pectunculus assimilis</i> , Sow.	u. s. in grav., $\frac{1}{4}$ t. - l. w.	20	Puert. Port., sdy. m. & grv., 8-12 fm., <i>Cum.</i>
— <i>maculatus</i> , Brod.		1	Puert. Port., fine gravel, 11 fm., <i>Cum.</i>
<i>Arca alternata</i> , Sow.		4	Ecuador, on st., 12 fm., <i>Cum.</i> ; Maz., <i>Jew.</i>
— ? <i>aviculoides</i> , <i>Rve.</i>		1	St. Elena, 10 fm., mud, <i>Cum.</i>
= <i>A. auriculata</i> , Sow.			
— <i>emarginata</i> , Sow.		3	Real Llejos, Atac., Xipix., sandy mud, 6-8 fm., <i>Cum.</i> ; Gulf Cal., Sow.

No.	Name.	Station.	No. of Specimens.	Other Localities.
416	<i>Arca gradata</i> , <i>Brod. & Sow.</i>	under stones, l. w.	3	St. Elena, <i>Cum.</i> ; Sta. Barbara, <i>Je</i>
417	— <i>grandis</i> , <i>Brod. & Sow.</i>	$\frac{1}{2}$ -buried in m. & small	13	Real Llej., Guayaq., <i>Cum.</i>
	One valve weighed $2\frac{1}{4}$ lb.	algæ, u. trees, $\frac{1}{2}$ -t. +		
418	— <i>mutabilis</i> , <i>Sow.</i>	u. s., & crev. rks., l. w.	70	Is. Plata, <i>Cum.</i>
419	— (<i>Byssosarca</i>) <i>pholadiformis</i> , n. s.	in soft stones, l. w.	2	
420	— <i>Reeveana</i> , <i>D'Orb.</i>	under stones, l. w.	9	St. Elena, Monte Christi, <i>Cum.</i>
	= <i>A. Heblingii</i> , <i>Rve. non Brug.</i>	.....		Philippines, <i>Reeve.</i>
421	— <i>reversa</i> , <i>Sow.</i> .....	.....	4 v.	Tumbez, soft mud, 7 fm., <i>Cum.</i>
	= <i>A. hemicardium</i> , <i>Koch.</i>	.....	
422	— <i>similis</i> , n. s. ....	.....	10	
	[?] = <i>A. tuberculosa</i> , var.]	.....	
423	— <i>solida</i> , <i>Sow.</i>	under stones, l. w.	60	Payta, <i>Cum.</i>
424	— (<i>Byssosarca</i>) <i>Tabogensis</i> , n. s.	under stones, l. w.	60	
	[?] = <i>A. illota</i> , var.]	.....	
425	— <i>tuberculosa</i> , <i>Sow.</i>	thin mud, under mangroves, near h. w.	147	Real Llejos, l. w., <i>Cum.</i>
426	—, sp. ....	.....	2	
427	<i>Cardita affinis</i> , <i>Sow.</i>	"boring" in stones	70	B. Montija & Nicoya, sdy. m., 6-12
	= <i>modulosa</i> , Val., ? = <i>nodulosa</i> , Lam., not <i>nodulosa</i> , <i>Rve.</i>	and rocks, $\frac{1}{2}$ -t. —		<i>Cum.</i> Guaymas, <i>Green</i> [?].
428	— <i>laticostata</i> , <i>Sow.</i>	partly buried in calc. sand and gravel, under stones, l. w. s.	150	Guacomayo, St. Elena, Pan., Real L
		l. w.		sand, 6-12 fm., <i>Cum. t. Sow.</i>
429	— <i>radiata</i> , <i>Sow.</i> .....	.....	20	Salango, muddy sand, 6-12 fm., <i>Ci</i>
430	<i>Cardium graniferum</i> , <i>Brod. & Sow.</i>	.....	6 v.	Gulf Nicoya, Xipix., <i>Cum.</i>
431	— <i>obovale</i> , <i>Brod. & Sow.</i>.....	.....	3 v.	Xipix., sandy mud, 11 fm., <i>Cum.</i>
432	— <i>planicostatum</i> , <i>Sow.</i> .....	.....	1 v.	Guacomayo, fine sand, 13 fm., <i>Cum</i>
	[?] = <i>C. procerum</i> , var.]	.....	
433	— <i>procerum</i> , <i>Sow.</i> .....	.....	6 v.	Real Llej., coarse sand, 4-6 fm., <i>Cu</i>
434	— <i>senticosum</i> , <i>Sow.</i> .....	.....	5	St. Elena, sandy mud, 6-12 fm., <i>Ci</i>
	= <i>C. rastrum</i> , <i>Rve.</i>	.....	
435	<i>Venus</i> ? <i>amathusia</i> , <i>Phil.</i> .....	.....	2	Mazatl., <i>Green.</i>
436	— ? <i>discors</i> , <i>Sow.</i>	coarse sand among stones, $\frac{1}{4}$ - $\frac{1}{2}$ -t.	146	St. Elen. and Guac., sandy mud, 6-9 f
	[?] = <i>Tapes grata</i> , Say.]	.....		<i>Cum.</i> ; Guaymas, <i>Green.</i>
437	— <i>gnidia</i> , <i>Brod. & Sow.</i> .....	.....	4	Payta, <i>Fontaine.</i>
438	— <i>multicostata</i> , <i>Sow.</i> .....	.....	5	Pan., coarse sand, l. w., <i>Cum.</i> ; La I
	= <i>V. Thouarsi</i> , Val.	.....		<i>Green.</i>
439	— <i>pectunculoides</i> , Val.	coarse sand, under mangroves, $\frac{1}{4}$ - $\frac{1}{2}$ -t.	172	
	[= <i>Tapes histrionica</i> , Sow.]	.....	
440	— <i>subrugosa</i> , <i>Sow.</i>	partly buried in coarse	33	
	= <i>V. subsulcata</i> , Mke.	sd. amg. st. or u. tr., $\frac{1}{2}$ -t.		
441	—, sp. <i>a.</i>.....	.....	12 v.	
442	—, sp. <i>b.</i>	coarse sand, $\frac{1}{2}$ -t.	14	
443	<i>Cytherea affinis</i> , <i>Sow.</i> .....	.....	10	Xipix., 10 fm., sandy mud, <i>Cum.</i>
444	— <i>aurantiaca</i> , <i>Sow.</i> .....	.....	3	G. Nicoya, Jay.
	= <i>C. aurantia</i> , Hanl.	.....	
445	— <i>consanguinea</i> , n. s. ....	.....	8	
446	— <i>radiata</i> , <i>Sow.</i>.....	.....	2	Salang., Xipix., sandy mud, 9 fm., <i>Ci</i>
447	— <i>squalida</i> , <i>Sow.</i> .....	.....	5	St. Elena, sandy mud, 6 fm., <i>Cum.</i>
448	<i>Artemis Dunkeri</i> , <i>Phil.</i>.....	.....	36	St. Elena, <i>Cum.</i>
	= <i>A. Pacifica</i> , Trosch.	.....	
	[= <i>A. simplex</i> , Hanl.]	.....	
449	— <i>saccata</i> , Gld. ....	.....	2	
	[= <i>Cyclina subquadrata</i> , Hanl.]	.....	
450	<i>Gouldia Pacifica</i> , n. s. ....	.....	64	
451	<i>Cyrena maritima</i> , n. s.	in impalpable mud, under bushes, where a small stream emptied, h. w. <i>Balani</i> sometimes attached.	9	

Name.	Station.	No. of Specimens.	Other Localities.
<i>Lucina tellinoides</i> , <i>Rve.</i>	30	Is. Muerte, sandy mud, 11 fm., <i>Cum.</i>
<i>Capsa altior</i> , <i>Sow.</i>	buried in sand, l. w.	3	G. Nicoya, coarse gravel, 12 fm., <i>Cum.</i> Var., mud, 5 fm., Tumbez, <i>Cum.</i>
<i>Donax assimilis</i> , <i>Hanl.</i>	a few inches in sd., $\frac{3}{4}$ -t.	350	Mazatlan, <i>Green.</i>
— <i>gracilis</i> , <i>Hanl.</i>	20	B. Caraccas, Guay., Chiriqui, <i>Cum.</i>
— <i>navicula</i> , <i>Hanl.</i>	3	Nicoya, <i>Cum.</i>
— <i>rostratus</i> , n. s.	1	Maz., <i>Green</i> ; Sta. Barb., <i>Jewett.</i>
<i>Tellina</i> ? <i>aurora</i> , <i>Hanl.</i>	3	soft sandy m., 10 fm., <i>Cum.</i> ; Rio Janeiro, [Jay.
— <i>cognata</i> , n. s.	1 v.	
— One valve, "closely allied to the Caribbæan <i>T. similis</i> ."		
— <i>Columbiensis</i> , <i>Hanl.</i>	2	Monte Christi, sandy mud, 12 fm., <i>Cum.</i>
— <i>concinna</i> , n. s.	3	
— <i>crystallina</i> , <i>Chemn.</i>	1 v.	St. Elena, <i>Hanl.</i>
— <i>Cumingii</i> , <i>Hanl.</i>	2	Guacomayo, coral sand, <i>Cum.</i>
— <i>Dombel</i> , <i>Hanl.</i>	12	sandy mud, 12 fm., <i>Cum.</i>
— <i>felix</i> , <i>Hanl.</i> [?]	36 v.	sandy mud, 6-10 fm., <i>Cum.</i>
[Prof. Adams' shell is said by Dr. Gld. to be his <i>Strigilla fucata</i> .]		
— <i>laceridens</i> , <i>Hanl.</i>	7	sd. m., 3-5 fm., Tumbez & Chiriqui, <i>Cum.</i>
— <i>prora</i> , <i>Hanl.</i>	1 v.	sd. m., 6-9 fm., St. Elen. & Salango, <i>Cum.</i>
— <i>puella</i> , n. s.	12 v.	
— <i>rubescens</i> , <i>Hanl.</i>	2	sandy mud, Tumbez, <i>Cum.</i>
— <i>siliqua</i> , n. s.	1	
— <i>simulans</i> , n. s.	1 v.	
[= <i>T. punicea</i> , <i>Hanl.</i> Species constituted from a single valve to include the Pacific specimens of the W. Indian form.]		
— <i>sincera</i> , <i>Hanl.</i>	15	
— <i>vicina</i> , n. s.	10	"Closely allied to <i>T. bimaculata</i> ."
—, sp. <i>a</i> , like <i>elongata</i>	1 v.	
—, sp. <i>b</i>	1 v.	
—, sp. <i>c</i>	5 v.	
<i>Petricola cognata</i> , n. s.	1	
[? = <i>P. pholadiformis</i> , Gld. MS.]	Guaymas.
<i>Saxicava</i> ? <i>tenuis</i> , <i>Sow.</i>	soft stone, $\frac{1}{2}$ -t.	1	Pascomayo and Lambeyeque, <i>Cum.</i>
[? = <i>S. pholadis</i> , Linn. var.]		
<i>Cumingia coarctata</i> , <i>Sow.</i>	4	Caraccas, sandy mud, 7 fm., <i>Cum.</i>
— <i>trigularis</i> , <i>Sow.</i>	3	St. Elena, stones, deep water, <i>Cum.</i>
—, sp. <i>a</i>	4	
—, sp. <i>b</i>	1	
—, sp. <i>c</i>	1 v.	
—, sp. <i>d</i>	1	
Prof. Adams regards the above as "probably new species: but as their characters are <i>probably</i> somewhat variable," prudently forebore from describing them without more specimens. They are probably varieties; as <i>Cumingia</i> , like other nestlers, are <i>most</i> variable in form and sculpture.		
<i>Amphidesma bicolor</i> , n. s.	1 v.	
— ? <i>ellipticum</i> , <i>Sow.</i>	20	Monte Christi, 9 fm., sandy mud, <i>Cum.</i>
— <i>proximum</i> , n. s.	18	
[= <i>Semele proxima</i> , M. Cum. pars: pars = <i>S. proxima</i> , B. M. Maz. Cat. p. 28, = <i>S. flavicans</i> , Gld.]		

No.	Name.	Station.	No. of Specimens.	Other Localities.
488	<i>Amphidesma pulchrum</i> , Sow. ....	.....	4	Carac., Cum. teste Sow. in P. Z. S. ...
489	— <i>striosum</i> , n. s. ....	.....	1	Elena and Pan., Cum. teste Sow. in [Conch. ...]
490	— <i>tortuosum</i> , n. s. ....	.....	1	
491	— <i>ventricosum</i> , n. s. (? <i>Kellia</i>) .....	.....	1 v.	
492	<i>Crassatella gibbosa</i> , Sow. ....	.....	1 v.	St. Elena & Xipix., sdy. m., 11 fm., C.
493	<i>Mulinia donaciformis</i> , Hanl. [?] .....	.....	14	[Payta, Font. ...]
	[? = <i>M. angulata</i> , Gray.] .....	.....	
494	— <i>ventricosa</i> , Gld. ....	.....	3	
	[= <i>Mactra exoleta</i> , Gray.] .....	.....	
495	<i>Lutraria elegans</i> , Sow. (<i>Mactra</i>). Not <i>L. undulata</i> , Gld. teste C. B. Ad. ....	.....	6 v.	"The Atlantic analogue is <i>L. cancellata</i> , Say."
496	<i>Mactra velata</i> , Phil. ....	.....	10	
497	<i>Anatina alta</i> .....	.....	1 v.	
	(? <i>Thracia</i> or <i>Periploma</i>.) .....	.....	
498	<i>Pandora cornuta</i> , n. s. ....	.....	1	
499	<i>Potamomya æqualis</i> , n. s.	soft mud, under mangroves, near h. w. & outlet of small stream, with <i>Arca tuberculosa</i> .	1 v.	
500	— <i>inflata</i> , n. s.	" " "	3	
501	— <i>trigonalis</i> , n. s.	" " "	2	[7-17 fm., C.]
502	<i>Corbula bicarinata</i> , Sow.	u. s., deep in sd., l. w. +	260	Rl. Llej., Carac., St. Elen., sdy. n.
503	— <i>biradiata</i> , Sow. ....	.....	21	Chiriqui & Carac., s. & m., 3-7 fm., C.
504	— <i>obesa</i> , Hds. ....	.....	6 v.	8° 57'-21° 32', 22-33 fm., Hds.
505	— <i>ovulata</i> , Sow. ....	.....	7	Xipix., Mont., Carac., sdy. m., 7-17
506	— <i>rubra</i> , n. s. ....	.....	1	[C.]
507	— <i>tenuis</i> , Sow. ....	.....	1 v.	Bay Montijo, sandy m., 12 fm., Cu
508	—, sp. <i>a</i> , like <i>Taheitensis</i> .....	.....	1 v.	[Maz., ...]
509	—, sp. <i>b</i>. ....	.....	2 v.	
510	<i>Solecurtus affinis</i> , n. s. ....	..... [l. w.]	10	"Like <i>S. Caribæus</i> ."
511	<i>Solen rudis</i> , n. s.	coarse sd. among st.,	55	
512	<i>Pholas crucigera</i> , Sow. = <i>crucifera</i> , Sow. = <i>cruciger</i> , Müll. ....	.....	1	Is. Puna, B. Carac., Nicoya, soft sa stone, $\frac{1}{2}$ -t.; soft stone, l. w.; h clay, 13 fm., Cum.
513	— <i>tubifera</i> , Sow. ....	.....	1	Carac., in decayed wood, 10 fm., Cu
514	— <i>xylophaga</i> , Val. (non <i>Desh.</i>)	filling the bottom of an old "dug-out," h. w.	20	[Payta, Fonta.]
515	—, sp. <i>a</i> , like <i>lanceolata</i> .....	.....	2 v.	
516	—, sp. <i>b</i>. ....	.....	1 v.	
517	<i>Orbicula Cumingii</i> , Brod.	underside of st., l. w.	50	Payta, St. Elena, l. w.—6 fm., Cum Chili and Peru, Desh.

If this list of species be estimated according to the standard of judgment followed in the Mazatlan Catalogue, which is necessary for a fair comparison between the two, the following numbers will not be needed:—

Univalves: 5, 33, 52, 70, 72, 164, 174, 199, 211, 212, 216, 218, 241, 330, 334, 337, 343, 348, 349, 362, = 20.

Bivalves: 422, 432, 482, 483, 484, = 5.

The names given to 459 and 471 are also not required.

Others may be discovered on a comparison of specimens or figures (which it is to be hoped the Trustees of Amherst College, who possess the types, will cause shortly to be published), though they are not recognized from the descriptions alone. The discovery of a large number of deep-water species was due to the hermit crabs. Certain observed differences of station between Messrs. Cuming and Adams are very interesting; in a few there may be error; from others we learn what great latitude is allowed to some of the

species: *e.g.* *Corbula bicarinata* is quoted alive from low water to 17 fm.; while *Anomia lampe*, quoted from low-water mark, was found by Major Rich as far north as Monterey in 60 fm. water!

Of the 157 species described as new, 5 had already appeared under other names, and 15 are believed to be only varieties. Fifteen are named from their doubtful characters or similarity to other forms; 8 are designated from their habitat or station; 23 receive names expressive of their small size; 5 are designated according to the number of specimens found; and 6 would probably not have been constituted, had the same shells appeared in the Caribbæan waters.

The following is a comparison of the above collection with that of M. Reigen from Mazatlan, excluding from the latter the land and freshwater shells and the *Bryozoa*; and bringing down the number of species in Prof. Adams's Catalogue to the standard adopted in the latter.

Pan.	Maz.	Common.	
136	215	38=28 per cent.	Bivalves.
356	449	77=21·6 per cent.	Univalves.
492	664	115=23·4 per cent.	Total.
12	104		[synonyms.
139	209		Old species united: not including
			New species described.
61	108	?	Indeterminate species.
73	298	25=34 per cent.	Minute species.

55. The following are extracted from the British Museum Catalogue of the *Veneridæ*, &c. by M. Deshayes. The minute division of species in this and in his recent articles in the Proc. Zool. Soc. contrasts somewhat strangely with the opposite tendency displayed in his extremely valuable edition of Lamarck's *Animaux sans Vertèbres*, a work which has been employed throughout, but not quoted, simply as not containing original authorities on our present inquiry.

Page.	No.	
13	25	<i>Dosinia turgida</i> , Rve. = <i>Artemis tenuis</i> , Sow. jun. Central America, Sale.
76	70	<i>Dione brevispinata</i> , Desh. = <i>Cytherea brevispina</i> , Sow. jun. California.
135	48	<i>Chione callosa</i> , Desh. = <i>Ch. Nuttallii</i> , var. Non <i>Dosinia callosa</i> , Conr. California: not Sandw. Is.
192	8	<i>Venerupis foliacea</i> , Desh. Mazatlan.
207	1	<i>Petricola mirabilis</i> , Desh. [Monterey, Hartweg, teste Sow.] California.
253	37	<i>Cyrena Fontainii</i> , Desh. = <i>olivacea</i> , Cpr. Non <i>C. Fontainii</i> , D'Orb. Mazatlan.
254	39	<i>Cyrena solida</i> , Phil. Abbild. Conch. p. 78. pl. 1. f. 9. Nicaragua.
257	49	<i>Cyrena Floridana</i> , Conr. Mazatlan and Florida.

The Mazatlan specimens are *C. Mexicana*, jun.

56. The collection of which the following is a list, came into my possession exactly as it was received from a sailor, who brought it from a single port on the west coast of North America. The purchaser, judging, from the prevalence of Mazatlan shells in it, that it came from that place, did not make exact inquiries at the time, and the sailor could not be traced afterwards. Though consisting mainly of shore shells, the collection was so remarkably free from imported specimens, that it derives some value as a geographical authority. The general accordance of the species with what we know of

the local-fauna of Acapulco, makes it probable that it came from that place; but it is cited in the B. M. Mazatlan Catalogue as "S.W. Mexico."

1. *Solecortus violascens*, n.s. B.M. Maz. Cat. p. 27, note. 1 pair.
2. *Tellina princeps*. Fine: 1 val....S.*
3. *Tellina rubescens*. 1 pr.....P.
4. *Mactra elegans*. 1 pr.....P. M.
5. *Mactra angulata*. 1 pr.P. M.
6. *Dosinia Dunkeri*. 1 pr.P. M.
7. *Dione aurantiaca*. 1 val., fine...P. M.
8. *Dione chionæa*. 1 v.P. M.
9. *Venus amathusia*. 1 pr.P. M.
10. *Venus Columbiensis*. 1 val. ...P. M.
11. *Tapes grata*. 1 pr.P. M.
12. *Anomalocardia subrugosa*. 1v. P. M.
13. *Anomalocardia subimbricata*. Valves, common.....S. M.
14. *Cardita affinis*. 1 pr.....P.
15. *Chama frondosa*. 1 v.P.
16. *Cardium procerum*. Rare. ...P. M.
17. *Cardium consors*. 1v. (Guatemala). S.
18. *Cardium maculatum*. 1 v.....S.
19. *Lucina tigerrina*. 1 fresh val...M.
20. *Modiola capax*. 1 v.M. C.
21. *Mytilus palliopunctatus*. Rare....M.
22. *Arca Pacifica*. 1 pairP. M.
23. *Pinna ?rudis*. Extremely thick and large valvesP. M.
24. *Margaritiphora fimbriata*. Common. P. M.
25. *Pecten ventricosus*. (Colouring extremely variable.) Valves, common? S. P.
26. *Pecten ?senatorius*. (China Seas. Perhaps an allied sp.) 2 fresh pairs.
27. *Ostrea conchaphila*. Valves. P. M. C.
28. *Ostrea palmula*. 1 pairM. C.
29. *Placunanomia foliata*. 1 fresh valve. M.
30. *Bulla Adamsi*. Rare.....M.
31. *Siphonaria gigas + characteristic*. CommonP.
32. *Patella discors*. CommonM.
33. *Acmaea scabra*. 1 sp.M. C.
34. *Acmaea grandis*, Gray. Common. C.
35. *Fissurella nigropunctata*. Com...P.
36. *Uvanilla olivacea*. RareM.
37. *Uvanilla unguis*. Common.....M.
38. *Pomaulax undosus*. Fresh opercula. C.
39. *Callopoma saxosum*. Rare.....P.
40. *Tegula pellis-serpentis = strigilatus*, Anton. Not uncommonP.
41. *Nerita scabriuscula*. Large and common.....P. M.
42. *Nerita Bernhardi*. Abundant. P. M.
43. *Crepidula aculeata*. 1 sp. S. P. M.
44. *Crepidula ?unguiformis*. 1 sp. P. M.
45. *Crepidula arenata*. 1 sp.S.
46. *Galerus conicus*. 1 sp.....S. P. M.
47. *Galerus mammillaris*. 1 sp....S. P. M.
48. *Crucibulum umbrella*, Desh. = *rudis*, Brod. Common, fine, and very variableP.
49. *Crucibulum spinosum*. 1 sp. S. P. M. C.
50. *Hipponyx Grayanus*. On *Pinnae*. P. M.
51. *Aletes Peronii*. 1 sp.P. M.
52. *Turritella goniosoma*. 1 sp....S. M.
53. *Cerithium maculosum*. Common. P. M.
54. *Cerithium stercus-muscarum*. Rare. P. M.
55. *Cerithium famelicum*. 1 sp....P. M.
56. *Cerithium uncinatum*. Rare....P. M.
57. *Cypræa exanthema*, var. *cervinetta*. CommonP. M.
58. *Cypræa arabicula*. Very common. S. P. M.
59. *Trivia pustulata*. Rare.....S. P. M.
60. *Trivia radians*. 1 sp.S. P. M.
61. *Strombus galea*. 1 sp.....P. M.
62. *Strombus granulatus*. Common. S. P. M.
63. *Strombus gracilior*. Rare...S. P. M.
64. *Terebra robusta*. 1 sp.P.
65. *Pleurotoma funiculata*. 1 sp. ...M.
66. *Drillia rudis*. 1 sp.....S. P. M.
67. *Conus regalitatis*. Very rare. P. M.
68. *Conus Mahogani*. 1 sp.....P.
69. *Conus gladiator*. 1 sp.....P. M.
70. *Natica maroccana* and vars. AbundantP. M.
71. *Natica excavata*. Very rareP.
72. *Polinices uber*. RareS. P. M.
73. *Polinices (Galapagosa?) otis*. Very rareP.
74. *Ficula decussata*. RareP. M.
75. *Marginella prunum*†. Very rare. P.
76. *Oniscia tuberculata*. Rare.....P.
77. *Cassiss coarctata*. Rare.....P.
78. *Malea ringens*. 1 sp.....S. P.
79. *Oliva porphyria*. 1 sp., fineP.
80. *Oliva cruenta* (Tahiti. ? imported). 1 dead shell.
81. *Olivella volutella*. Very common. P.
82. *Aragonia testacea*. Common. P. M.
83. *Latyrus concentricus*, Rve. Rare. P.
84. *Latyrus castaneus*, Rve. Rare. P.
85. *Latyrus tuberculatus*, Brod. Rare. P.
86. *Cuma tectum*. 1 sp.P.
87. *Vitularia salebrosa* (fresh, with opere.). 1 sp.P. M.

* S. South America. P. Panama. M. Mazatlan. C. California.

† Both this species and *M. sapotilla*, Hds., are quoted from the West Coast.

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|--|----------|--|-------|
| 88. <i>Purpura patula</i> . Rare | M. | 94. <i>Columbella labiosa</i> . Rare | S. P. |
| 89. <i>Purpura biserialis</i> . 1 sp.... | S. P. M. | 95. <i>Anachis rugosa</i> . 1 sp. | S. P. |
| 90. <i>Purpura triserialis</i> . 1 sp..... | M. | 96. <i>Anachis fulva</i> . 1 sp. | P. M. |
| 91. <i>Purpura melones</i> . Rare..... | S. P. | 97. <i>Pisania ringens</i> . Rare | P. M. |
| 92. <i>Monoceros brevidentatum</i> , Gray. 1 sp. | S. P. | 98. <i>Murex radix</i> . Rare..... | P. |
| 93. <i>Columbella fuscata</i> . Rare...S. P. M. | | 99. <i>Murex regius</i> . Common | P. M. |

This collection, containing 99 species, of which only one is certainly and another perhaps imported, shows what a common sailor may do, simply by keeping his shells from being mixed. One species is new; 46 are common to both Mazatlan and Panama; 29 are found at Panama, but not at Mazatlan; 6, though not yet quoted from Panama, are southern types; 14 are found at Mazatlan, and not at Panama; 6 are northern types, being found in Lower California, and of these, two (viz. *Acmea grandis* and *Pomaulax undosus* [operc.]) were not found at Mazatlan.

57. In the Proceedings of the Boston Soc. Nat. Hist. for Feb. 1855, Dr. A. A. Gould described the following land and freshwater shells from the western part of N. America :—

- P. 127. *Helix ærugimosa*, Gld. San Francisco, *Dr. Bigelow*.
P. 127. *Helix infirmata*, Gld. San Francisco, *Dr. Bigelow*.
P. 128. *Physa bullata*, Gld. Oregon, *Dr. J. G. Cooper*.
P. 128. *Physa humerosa*, Gld. Colorado Desert, *Dr. Th. H. Webb*; Pecos River, *Mr. W. P. Blake*.
P. 128. *Physa virgata*, Gld. River Gila and near San Diego, *Dr. Th. H. Webb*.
P. 129. *Planorbis ammon*, Gld. Colorado Low Desert, *Dr. T. H. Webb*, *Mr. W. P. Blake*.
P. 129. *Planorbis gracilentus*, Gld. Great Colorado Desert, low lands, *Dr. T. H. Webb*.
P. 129. *Amnicola protea*, Gld. Colorado Desert, *Dr. T. H. Webb*, *Mr. W. P. Blake*. = *Melania exigua*, *Conr.* (read Feb. 13th).
P. 130. *Amnicola longinqua*, Gld. Colorado Desert, *Mr. W. P. Blake*.

The same gentlemen appear to have made collections on the coast; of which the following lists have been obligingly sent by Dr. Gould.

Collected by Dr. Thomas H. Webb.

AT GUAYMAS.

- Acmaea æruginosa* [= *A. mesoleuca*, var.].
Neritina picta.
Nerita " ? *præcognita*, C. B. Ad." =
Bernhardi, Récl.
Chlorostoma rugosum, var.

AT SAN DIEGO.

- Tellina nasuta*.
Donax.
Venus dispar.
Venus, sp.
Cardium Californiense.
Arca pernoides. 1 valve. "Lieut. Webb."
Pectunculus (dead, rubbed).
Pecten (dead valve).

Ostrea.

- Fissurella crenulata* (very young).
Haliotis ? *Kamtschatkana*.
Trochus viridulus (very red var.). "Lieut.
 Webb."
Phasianella compta.
Calyptrea hispida, = *Cruc. spinosum*.
Cerithium irroratum, Gld.
Potamis pullatus, Gld.
Cerithidea albonodosa.
Natica ? *uber*.
Ranella muriciformis.
Oliva splendidula.
Nassa luteostoma.
Nassa tegula, Rve., dead.
Purpura emarginata.

It is probable that some of the above shells, as *Ranella muriciformis*, *Oliva splendidula*, *Nassa luteostoma*, *Natica uber*, had found their way northwards by the accidents of commerce. None of them were seen by Mr. Nuttall, who spent some time at the place.

Collected by Dr. Bigelow at San Francisco.

Venus rigida, Gld. ?=Tapes diversa.
Cardium Nuttallii.
Mytilus Californianus, Conr.

Lottia scabra, Gld. (=spectrum, Nutt.)
Natica Lewisii, Gld. (operculum only).
Purpura Conradi, Nutt.

Collected by Mr. William P. Blake.

AT SAN FRANCISCO.

Mytilus edulis, or allied.
Lottia scabra, Gld. (=spectrum, Nutt.)

AT SAN PEDRO.

Semele rubrotincta, Conr.
Tellina secta, Conr.
Tapes gracilis, Gld.
Venus discors, Sow. " =grata, Say=staminea, Conr."
Venus Nuttallii, Conr.
Venus fluctifraga.
Lucina orbella, Gld.
Lottia patina, Esch.
Lottia scabra, Gld.
Scurria pallida, Gray=mitra, Brod.
Trochus mæstus, Brod.
Calyptrea hispida, Brod.
Crepidula incurva, Brod.
Oliva buplicata.

AT SAN DIEGO.

Sphæria Californica, Conr.
Tellina vicina, C. B. Ad.
Tellina secta, Conr.
Solecurtus Californianus, Conr.
Petricola carditoides, Conr.=cylindræa, Desh.
Venus fluctifraga, Sow.
Cardium cruentatum, Gld.*
Modiola capax, Conr.
Pecten ? purpuratus.
Pecten monotimeris, Conr.
Bulla nebulosa, Gld.
Bulla virescens, Gld.
Bulla longinqua, Gld.*
Bulla vesicula, Gld.*
Melampus olivaceus.
Phasianella compta, Gld.*
Potamis pullatus, Gld.

* "Not yet from the press." Gould in litt.

58. The latest conchological traveller who has visited the West N. American province is Mr. T. Bridges†; who, in the spring of the present year, has brought a collection from the Bay of Panama. Although he had no dredge, and the district had been well explored, he succeeded in finding 24 new species, besides others new to the fauna of the place. The new species are described in the 'Proc. Zool. Soc.' June 10th, 1856, pp. 159-166; and, with a few others, interesting for their locality, are as follow:—

Corbula ventricosa, Rve.
? Scrobicularia producta, Cpr.
?— viridotincta, n. s.
Tellina rhodora, Hanl.
— fausta.
— Deshayesii, n. s.
Strigilla disjuncta, n. s.
Semele obliqua, Wood.
— planata, n. s.
Cumingia trigonularis, var.
Lyonsia diaphana, Cpr.
Mactra (Mactrella) lacinata, n. s.
— elegans, jun.
Cyclina producta, n. s.
Lima angulata, Sow.
Melampus Bridgesii, n. s.
Umbrella ovalis, n. s. Mouth of the River Chiriqui. Also found exactly in the same place by a French naturalist.
Pyrgula quadricostata, n. s.
Erato ? Maugerie, var. *Panamensis*.
Trochus (Ziziphinus) MacAndreæ [B. M. Maz. Cat. no. 290].
Hipponyx planatus [B. M. Maz. Cat. no. 348].

Cithara sinuata, n. s.
Mangelia acuticostata, n. s.
— ? striosa, C. B. Ad.
— ? rigida, var. *fusciligata*.
Clathurella intercalaris, n. s.
— serrata, n. s.
Drillia punctatostriata, n. s.
? Pleurotoma gracillima, n. s.
Scalaria regularis, n. s.
— tiara, n. s.
— subnodosa, n. s.
— Cumingii, n. s.
— Hindsii, n. s.
Cirsotrema funiculata [B. M. Maz. Cat. no. 569].
Natica excavata, n. s.
Polinices Gallapagosa, Rve. ?=ovum.
Mitra solitaria, C. B. Ad.
? Triton crebristriatus, n. s.
Phos buplicatus, n. s.
Iatyrus tumens, n. s.
Triton eximius, Rve.=parvus, C. B. Ad.
Anachis pygmæa, var., exactly resembling the W. Indian *Col. costulata*, C. B. Ad.

† The Mammals and Birds brought by Mr. Bridges are described in Proc. Zool. Soc. 1856, pp. 138-143.

59. Having now presented the results of all known expeditions on the coast, we have further to bring together species collected from stray quarters. The following are described in the 'Proc. Zool. Soc.' 1832-56. Most of the Gulf shells were collected by Lieut. Shipley, and of those from California by Mr. Hartweg.

Page.	Proc. Zool. Soc.	Locality.	Station.
1832.			
57	<i>Marginella cypræola</i> , Sow. [? Erato]...	Acapulco, St. Elena.	under stones & sand.
59	<i>Chiton lævigatus</i> , Sow.	Guaymas, Mr. Ealing of H.M.S. 'Sapphire.'	under stones at low water.
1833.			
22	<i>Arca cardiiformis</i> , Sow.	San Blas.	on the sands.
36	<i>Corbula radiata</i> , Sow.	Acapulco.	1 sp. on sands.
53	<i>Conus concinnus</i> , Brod.	Gulf of California.	on sands.—Mus. Cum.
84	<i>Cardium elatum</i> , Sow.	Guaymas.	in sandy mud, l. w.
85	— <i>maculosum</i> , Sow. = <i>C. maculatum</i> , Sow. in Conch. Ill.	Is. 3 Marias (Gulf Calif.).	on the sands.
1834.			
19	<i>Conus ferrugatus</i> , Sow.	"Gulf Calif. & Is. Guaym."	
61	<i>Terebra variegata</i> , Gray. = <i>T. Africana</i> , Gray, Griff. Cuv. pl. 23. f. 5.	(No loc.) but v. P.Z.S. 1843, p. 164, no. 67, where Hinds gives it, on the authority of Mr. Cuming, as "Guaymas, 10-12 fms., sandy mud."	
1835.			
6	<i>Siphonaria pica</i> , Sow.	Acapulco.	on rocks in exp. situat.
22	<i>Venus subimbricata</i> , var.	Acapulco.	
22	— <i>undatella</i> , Sow.	Is. 3 Marias.	
43	— <i>leucodon</i> , Sow. = <i>V. Californiensis</i> , var. teste Sow. jun.	Guaymas.	coarse sand, l. water.
43	— <i>Californiensis</i> , Brod. (non <i>V. Californica</i> , Conr.)	Guaymas.	sandy mud, low water.
46	<i>Cytherea Dione</i> , var. γ , Brod. (= <i>C. lupinaria</i> .)	San Blas.	sandy mud, 7 fms.
50	<i>Monoceros cymatum</i> , Sow. = <i>M. lugubre</i> , Sow.	California.	
50	— <i>unicarinatum</i> , Sow. = <i>M. brevidens</i> , Conr.	(no locality)	
109	<i>Pecten subnodosus</i> , Sow. var. <i>a</i>	Gulf of California.	
110	— <i>circularis</i> , Sow.	Guaymas.	sandy mud, 7 fms.
200	<i>Cypræa candidula</i> , Gask. = <i>C. approximans</i> , Beck. = <i>C. odorina</i> , Ducl.	"Mexico."	
1842.			
199	<i>Buccinum elegans</i> , Rve.	California.	
1843.			
5	<i>Donax punctatostriata</i> , Hanl.	(no locality)	
5	— <i>carinata</i> , Hanl.	(no locality)	
33	<i>Pectunculus giganteus</i> , Rve.	Guaymas, Babb, R. N.	
79	— <i>bicolor</i> , Rve. = <i>P. inæqualis</i> , Gray, non Sow.	Gulf of California.	
166	<i>Terebra aciculata</i> , Hds. (? Lam.)	Acapulco.	
1844.			
27	<i>Scalaria indistincta</i> , Sow. jun.	"S. Blas, Hon. Mr. Harris."	
29	— <i>hexagona</i> , Sow. jun.	Acapulco, Col. Moffat.	
76	<i>Marginella imbricata</i> , Hds.	Acapulco, Col. Moffat.	
139	<i>Ranella triquetra</i> , Rve.	San Diego, Nutt.	
1845.			
14	<i>Donax culter</i> , Hanl.	{ var. <i>a</i> . "Matzellan." var. <i>b</i> . Acapulco.	
75	<i>Achatina</i> (? <i>Glandina</i>) <i>fusiformis</i> , Pfr.	Mountain of Coban, Vera Cruz.—Mus. Cum.	

Page.	PROC. ZOOL. SOC.	Locality.	Station.
1845.			
75	<i>Glandina nigricans</i> , Pfr.....	Vera Cruz.—Mus. Cum.	
75	— <i>monilifera</i> , Pfr.....	Mountain of Coban, Vera Cruz.—Mus. Cum.	
131	<i>Helix ventrosula</i> , Pfr.....	Mexico (Hds.) Texas (Sow.)	
132	— <i>Hindsi</i> , Pfr.	Mexico (Hds.) Texas (Sow.)	
139	<i>Littorina aspera</i> , Phil.....	Sitka, Barcl.; Mex. Hegew.	rocks at low water.
140	— <i>Sitkana</i> , Phil.....	Sitka, Barclay.	rocks, $\frac{1}{2}$ -t.
141	— <i>modesta</i> , Phil.	Sitka, Barclay; Mauritius, Capt. Caldwell.	rocks, $\frac{1}{2}$ -t.
1846.			
24	<i>Cyprea pulla</i> , Gask.	?	
29	<i>Bulimus fenestratus</i> , Pfr.	Mexico.	
29	— <i>Darwini</i> , Pfr.....	Galap., Darwin.	on bushes.
29	— <i>sculpturatus</i> , Pfr.	Galap., Darwin.	on bushes.
30	— <i>Gruneri</i> , Pfr.....	Mexico.	
31	<i>Achatina cylindracea</i> , Pfr.	Tortilla, Centr. Am.	damp places.
32	— (<i>Glandina</i>) <i>Sowerbyana</i> , Pfr. ...	Totontepec [Tehuantepec]	decayed veget. matter.
32	— (—) <i>Isabellina</i> , Pfr.....	Mexico.	dec. trunks of trees.
32	— (—) <i>Tortillana</i> , Pfr.....	Tortilla.	damp places.
54	<i>Halotis splendens</i> , Rve.....	California.	
58	— <i>aquatilis</i> , Rve.....	Kurile Is.	
113	<i>Bulimus Moricandi</i> , Pfr.	Mt. Coban, C. A., Lattre.	
1849.			
117	<i>Anomia lampe</i> , Gray	California, Lady Wigram.	
121	<i>Placunanomia macrochisma</i> , Desh.....	Kamtschatka, Deshayes.	
	= <i>P. Broderipii</i> , Gray, MS.	Onolaski, Mus. Cum.	
121	— <i>cepio</i> , Gray	California, Lady Wigram.	
122	— <i>alope</i> , Gray	California, Lady Wigram.	
130	<i>Helix Baskervillei</i> , Pfr.....	Vancouver's I., Baskerville.	
170	<i>Sanguinolaria tellinoides</i> , A. Ad. pl. 6. f. 6	Gulf of California.	
1850.			
187	<i>Melania maxima</i> , Lea	Copan, C. A.	
195	— <i>polygonata</i> , Lea.....	Copan, C. A.	
203	" <i>Modulus Carchedonicus</i> , Lam."	"Atooi, California, Nutt.,"	
	"= <i>Monodonta Sayii</i> , Nutt." Atooi	teste A. Ad.	
	is in the Sandwich Is., not in California. Mr. N. found no <i>Modulus</i> in California. <i>M. carchedonica</i> , Lam. is the W. Indian species, teste D'Orb. Coll.		
1851.			
12	<i>Columbella Californiana</i> , Gask.....	Sandeago.	
153	<i>Infundibulum Californicum</i> , A. Ad. ...	California.	
157	<i>Phorcus Californicus</i> , A. Ad.....	California.	
164	<i>Ziziphinus annulatus</i> , Martyn	Monterey, Hartweg.	
	= <i>Trochus virgineus</i> , Gmel.		
165	— <i>filosus</i> , Wood, Ind. Suppl. pl. 5. f. 23.	Str. San Juan de Fuco.	
	? = <i>Trochus castaneus</i> , Nutt.		
	= <i>T. ligatus</i> , Gld.		
168	— <i>Californicus</i> , A. Ad.	California.	
	? = <i>Trochus versicolor</i> , Mke.		
190	<i>Margarita calostoma</i> , A. Ad.	Juan de Fuco.	
197	<i>Tedinia pernoides</i> , Gray	? California.	
	= <i>Placunanomia pernoides</i> , B. M. Maz. Cat.		
225	<i>Velutina Sitkensis</i> , A. Ad.	Sitka.	
233	<i>Natica intemerata</i> , Phil.....	Gulf Calif., Rev. — Steel.	
260	<i>Helix annulifera</i> , Pfr.....	Panama, Kellett & Wood.	
	= <i>H. labyrinthus</i> , var. <i>sipunculata</i> , Forbes, P. Z. S. 1850, p. 53. pl. 9. f. 4.		
272	<i>Lagena Californica</i> , A. Ad.....	California.—Mus. Cum.	

Page.	PROC. ZOOL. SOC.	Locality.	Station.
1852.			
60	<i>Bulimus nucula</i> , <i>Pfr.</i>	Galapagos.	
82	<i>Orbicula Evansii</i> , <i>Dav.</i> , pl. 14. f. 32-34.	Bodegas.	
100	<i>Cardita Californica</i> , <i>Desh.</i>	Gulf of California.	
157	— <i>incrassatus</i> , <i>Pfr.</i>	Galapagos.	
1853.			
70	<i>Typhis fimbriatus</i> , <i>A. Ad.</i>	Gulf of California.	
71	<i>Murex pauxillus</i> , <i>A. Ad.</i>	Gulf of California.	
71	— <i>fimbriatus</i> , <i>A. Ad.</i>	Gulf of California.	
71	— <i>armatus</i> , <i>A. Ad.</i>	Gulf of California.	
96	<i>Semele Californica</i> , <i>A. Ad.</i>	Gulf of California.	
174	<i>Morum xanthostoma</i> , <i>A. Ad.</i> = <i>Oniscia tuberculata</i> , var. <i>a</i> , Rve.	Galapagos.	
185	<i>Pseudoliva Kellettii</i> , <i>A. Ad.</i>	?—Kellett & Wood. [Pro- bably Lower California.]	
1854.			
20	<i>Cyrena</i> (<i>Anomala</i>) <i>insignis</i> , <i>Desh.</i>	Bay of California.	
21	— <i>subquadrata</i> , <i>Desh.</i>	California.	
22	— (<i>Anomala</i>) <i>Cumingii</i> , <i>Desh.</i>	Central America.	
23	— — <i>inflata</i> , <i>Desh.</i>	Panama.	
42	<i>Typhis grandis</i> , <i>A. Ad.</i>	California.	
67	<i>Mactra angusta</i> , <i>Desh.</i>	Panama.	
68	— <i>Californica</i> , <i>Desh.</i>	Gulf of California.	
70	— <i>goniata</i> , <i>Gray</i> , <i>MS.</i>	California.	
137	<i>Rhizochilus asper</i> , <i>A. Ad.</i>	Gulf of California.	
295	<i>Achatina Albersi</i> (<i>Glandina</i>), <i>Pfr.</i>	Gulf of California.	
314	<i>Latyrus armatus</i> , <i>A. Ad.</i>	California.	
316	<i>Chlorostoma funebre</i> , <i>A. Ad.</i>	California.	
342	<i>Corbicula convexa</i> , <i>Desh.</i>	Central America.	
351	<i>Donax bella</i> , <i>Desh.</i>	Acapulco.	
351	— <i>Conradi</i> , <i>Desh.</i> Jun. = <i>D. culter</i> , Hanl. + <i>D. contusus</i> , Rve. + <i>D. Californica</i> , <i>Desh.</i> <i>MS.</i> non <i>Conr.</i> ? + <i>D. radiatus</i> , Val.	California.	
352	— <i>obesula</i> , <i>Desh.</i> ? = <i>D. Californica</i> , <i>Conr.</i> non <i>Desh.</i>	Central America.	
352	— <i>ovalina</i> , <i>Desh.</i>	Central America.	
359	<i>Tellina Mazatlanica</i> , <i>Desh.</i>	Mazatlan.	
362	— <i>brevirostris</i> , <i>Desh.</i>	C. America & California.	
363	— <i>delicatula</i> , <i>Desh.</i>	Mazatlan.	
363	— <i>straminea</i> , <i>Desh.</i>	Bay of California.	
1855.			
100	<i>Achatina</i> (<i>Glandina</i>) <i>conularis</i> , <i>Pfr.</i> ...	Mexico, <i>Sallé.</i>	
116	<i>Bulimus verrucosus</i> , <i>Pfr.</i>	Galapagos.	
121	<i>Rhizochilus</i> (<i>Coralliophila</i>) <i>Californica</i> , <i>A. Ad.</i> [= <i>Murex nux</i> , Rve.]	Gulf of California.	
183	<i>Erycina papyracea</i> , <i>Desh.</i>	West Columbia.	
224	<i>Dosinia simplex</i> , <i>A. Ad.</i> [not <i>Artemis</i> <i>simplex</i> , Hanl. = <i>D. Dunkeri</i> , Phil.]	Singapore.	
228	<i>Pandora claviculata</i> , <i>Cpr.</i>	Mazatlan, <i>Lieut. Shipley.</i>	
228	<i>Lyonsia</i> (<i>Osteodesma</i>) <i>diaphana</i> , <i>Cpr.</i>	Mazatlan, <i>Lieut. Shipley.</i>	
229	<i>Periploma excurvata</i> , <i>Cpr.</i>	Mazatlan (<i>Gruner</i>).	
229	— <i>papyracea</i> , <i>Cpr.</i>	Mazatlan (<i>Mus. Cum.</i>).	
229	<i>Thracia squamosa</i> , <i>Cpr.</i>	Mazatlan, <i>Lieut. Shipley.</i>	
230	? <i>Scrobicularia producta</i> , <i>Cpr.</i>	Gulf Calif., <i>Lieut. Shipley.</i>	
230	<i>Donax semistriatus</i> , <i>Cpr.</i> [non <i>Poli</i>]... = (<i>Donax</i>) <i>Serrula Carpenteri</i> , H. & <i>A. Ad.</i> Gen. ii. 405.	Gulf Calif. (<i>Mus. Cum.</i>)	
230	<i>Diplodonta subquadrata</i> , <i>Cpr.</i>	Mazatlan (<i>Mus. Cum.</i>).	
231	<i>Chiton Montereyensis</i> , <i>Cpr.</i>	Monterey, <i>Hartweg.</i>	on exposed rocks.
231	— <i>Hartwegii</i> , <i>Cpr.</i>	Monterey, <i>Hartweg.</i>	on exposed rocks.
232	— <i>regularis</i> , <i>Cpr.</i>	Monterey, <i>Hartweg.</i>	under stones.

Page.	PROC. ZOOL. SOC.	Locality.	Station.
1855.			
233	<i>Patella ?toreuma</i> , <i>Rve.</i> , var. <i>tenuilirata</i>	Monterey, <i>Hartweg.</i>	
233	<i>Galerus ?Sinensis</i> , var. <i>fuscus</i> (Probably from another source, by error of ticket.)	"G. Calif." (Mus. Cum.)	
233	— <i>subreflexus</i> , <i>Cpr.</i>	"G. Calif." (Mus. Cum.)	
234	<i>Fissurella nigrocincta</i> , <i>Cpr.</i> (The locality is omitted by accident in the Proceedings.)	Mazatlan (Mus. Cum.).	
234	<i>Callopoma ?fluctuatum</i> , var. <i>depressum</i> (= <i>Turbo funiculosus</i> , Kien. pl. 30. f. 1. Diagn. postea visâ.)	California (Mus. Cum.).	
234	<i>Litiopa divisa</i> , <i>Cpr.</i>	Cape S. Francisco*, <i>Hds. Str.</i> Sunda, among small drifted canes, Mus. Archer.	
235	<i>Scalaria reflexa</i> , <i>Cpr.</i>	San Blas, <i>Capt. Donnell.</i>	1 sp.
1856.			
41	<i>Fusus pallidus</i> (animal descr. by Gray)	Guaymas.	
41	<i>Pisania elegans</i> " "	Panama.	
41	<i>Triumphis distorta</i> " "	Panama.	
43	<i>Malea ringens</i> " "		
44	<i>Imperator</i> , ? n. s. " "	Panama.	
44	<i>Callopoma saxosum</i> " "	Panama.	
44	<i>Tegula pellis-serpentis</i> " "	Panama.	
167	<i>Crucibulum spinosum</i> , var. <i>compresso-conicum</i> .	California (Mus. Cum.).	
167	— ?? <i>imbricatum</i> var. <i>Cumingii</i> ...	Callao, Valparaiso.	
168	— ? <i>imbricatum</i> , var. <i>Broderipii</i> ...	? Peru (Mus. Cum.).	
	<i>Trichotropis</i> † <i>Gouldii</i> , <i>A. Ad.</i>	Chiriqui, <i>Bridges.</i>	

60. The following species and localities are extracted from the "Conchological Illustrations, by G. B. Sowerby," a small but exceedingly valuable work, remarkable for the excellence of the figures, but the disappointing brevity of its information.

No.	Fig.		
2	46.	<i>Cardium Indicum</i> , Lam.	N.W. Coast of America.
76	11, 35.	<i>Chiton fastigiatus</i> , Gray.	California.
	152.	— <i>tunicatus</i> , Sow. = <i>Katherina Douglasiæ</i> , Gray.	California.
54		<i>Bulinus unifasciatus</i> = <i>Bulinulus undulatus</i> , Guild.	St. Vincent's.
115	32.	<i>Cypræa sanguinea</i> , Gray.	Panama and Mexico.

61. The following are taken from the "Thesaurus Conchyliorum," by G. B. Sowerby, continued by G. B. Sowerby, Jun. The illustrations are excellent; but some of the later numbers do not equal the earlier portions. Several of the Monographs are very carefully drawn out by Messrs. Hanley, Hinds, and A. Adams. There are the same geographical errors as in other similar works.

No.	Page.	Pl.	Fig.	
	46	15	101.	<i>Pecten laqueatus</i> . N.W. America, <i>Capt. Dixon</i> (California, <i>Rve.</i>).
48	96	25	141.	<i>Scalaria indistincta</i> , Sow. jun. San Blas, <i>Hon. — Harris.</i>
13	115	36	20, 27.	<i>Columbella festiva</i> . "Brought from Acapulco by H. Cuming," [who never was there].
64	173	43	63.	<i>Terebra variegata</i> , Gray = <i>T. africana</i> , Gray, <i>Griff. Cuv.</i> "Guaymas, 10–12 fm., sandy mud, Cuming."

* Probably in Ecuador; not in Upper California, as supposed when described.

† This shell, described as "differing from the typical genus in the canal of the aperture being almost obsolete," is regarded by several eminent conchologists as a dead *Melania*. It was found near the mouth of a river.

No. Page. Pl. Fig.

- 18 352 70 50-2. *Terebratula Californica*, Küst. "Abounds on the coast of California."
- 91 534 116 249-51. *Neritina Listeri*, Pfr. Cuba and St. John's Riv., Nicaragua.
- 55 578 123 79, 80. *Bulla nebulosa*, Gould. Sand, 12 inch. Guaymas.
- 12 615 128 35. *Cytherea intermedia*, Sow. jun. "California, Cuming."
- 59 628 132 98. — *chione*, Linn. "Mr. Cuming's specimens are from Mazatlan."
- 65 631 132 104-6. — *circinata*, Born. = *Venus rubra*, Gmel. ? + *C. alternata*, Brod. Mazatlan, Capt. Donnel, R.N.
- 71 632 132 109. — *brevispinosa*, Sow. jun. 1 sp. California.
- 3 656 140 2. *Artemis ponderosa*, Gray, Anal. 1838, p. 309. = *Cytherea gigantea*, (Sow. MS.) Phil. Abbild. pl. 7. f. 1. Sandy mud, low water. Gulf of California.
- 65 697 146 41. *Tapes diversa*, Sow. jun. Monterey, Hartweg.
- 16 708 153 17, 18. *Venus simillima*, Sow. jun. California.
- 18 709 144 26, 27. — *amathusia*, Phil. Abbild. pl. 11. f. 4. = *V. encausta*, ? cujus. California.
- 24 769 165 30. *Venerupis paupercula*, Desh. P.Z.S. 1853, p. 5. [N. Zealand, Mus. Cum. et Brit. teste Desh.] "Mazatlan, Cuming," teste Sow.
- 25 811 171 33. *Obeliscus clavulus*, A. Ad. On the sands. Acapulco, Col. Moffat.
- 143 881 184 246. *Cerithium assimilatam*, C. B. Ad. "Shells of Jamaica. A darkly coloured Jamaican shell, like *C. trilineatum*," Phil. Medit. [= *C. assimilatam*, C. B. Ad., Pan. Shells, no. 194. *C. terebellum*, C. B. Ad. Contr. Conch. is the Jamaican species.]

62. The following species* are extracted from Mr. Reeve's 'Conchologia Iconica'; a work, the principal advantage of which is, that it figures the specimens in the Cumingian collection. The species are often very minutely subdivided: for this indeed the author may not always be answerable. It is to be regretted that there is sometimes a want of precision in the statement of localities†.

Sp.	Fig.	Name.	Station.	Depth in fms.	Locality.
3 19	...	<i>Amphidesma Californica</i> , A. Ad. = <i>Semele C.</i> , A. Ad. P. Z. S. July 1853.	.....	.....	Gulf of California.
3 20	...	proxima, [Rve. quasi] C. B. Ad. ... [= <i>Semele flavicans</i> , Gld.: v. antea, p. 279. no. 487.]	.....	.....	Panama [?]
4 24	...	<i>Donax contusa</i> , Rve. [= <i>D. Conradi</i> , adol.: v. B. M. Maz. Cat. p. 47.]	.....	.....	Mazatlan.
9 34	...	<i>Mactra angulata</i> , Gray, MS. ....	.....	.....	Gulf of California.
7 89	...	— <i>elegans</i> , Sow. Tank. Cat. ....	.....	.....	Florida, Mus. Cum. [?]
8 93	...	— <i>angusta</i> , Desh. P. Z. S. 1854. ....	.....	.....	Panama, Cum.
0 114	...	— <i>Californica</i> , Desh. " " ....	.....	.....	California, Mus. Cum.
4 17	...	<i>Lucina annulata</i> , Rve. ....	.....	.....	? California.
3 17	...	<i>Arca Brasiliana</i> , Lam. = <i>A. cardiiformis</i> , Sow.	on the sands	.....	"San Blas, Bay of California, Cum." [!] Rio Janeiro, Lam.
1 3	...	<i>Pectunculus giganteus</i> , Rve.	sandy mud	7	Guaymas, Babb.
4 16	...	— <i>inæqualis</i> , Sow. P. Z. S. 1832 = <i>Arca pectiniiformis</i> , Wd., S. pl. 2. f. 11.	sandy mud	10	Bay Panama, Real Llejos, Cum.

* See also pp. 187, 208, where many of the species now quoted would have been arranged, had I been able to refer to the Conch. Ic. whenever occasion required.

† When Mr. Cuming is given as the authority for depths and stations in places which he never visited, the more correct phrase (now generally adopted) would perhaps have been "Museum Cuming." The following instance will show the need of caution. Under *Mactra carinulata*, Desh. pl. 10. sp. 38, we read "Gulf of California: from the same locality as *M. donaciformis*." On turning to the latter, we find its locality given as New Zealand.

Pl.	Sp.	Fig.	Name.	Station.	Depth in fms.	Locality.
5	20	...	<i>Pectunculus bicolor</i> , <i>Rve.</i> P. Z. S. 1843 .. = <i>P. inaequalis</i> , Gray, Z. B. V., non Sow. [nec Krauss.]	.....	.....	Gulf of California.
7	31	a, b	<i>Pecten ventricosus</i> , Sow. in Thes. Conch. = <i>P. tumidus</i> , Sow. P. Z. S. 1835, p. 109, non Turt.	sandy mud	6-10	St. Elena, <i>Cum.</i> ; also P lippines, <i>Cum.</i>
31	137	...	— <i>circularis</i> , Sow. „ „ p. 110 ? = <i>P. nucleus</i> , var.	sandy mud	7	California, <i>Cum.</i> [!]
1	2	2, 3	<i>Hinnites giganteus</i> , Gray, Ann. Phil. 1826, vol. xii. p. 103. [= <i>Hinnita Poulsoni</i> , Conr. 1834, Journ. Ac. Nat. Sc. Phil. vol. vii. pt. i. p. 182. pl. 14.]	.....	.....	California and Straits Juan Fernandez [!].
9	34	...	<i>Spondylus limbatus</i> , Sow. Thes. Conch. p. 427. pl. 88. f. 51. [For the Mazatlan specimens, v. B. M. Cat. no. 208.]	.....	.....	Panama and Mazatlan.
14	52	...	— <i>radula</i> , <i>Rve.</i> .....	.....	.....	Tehuantepec, <i>Capt. Dar</i>
36	214	...	<i>Bulimus fenestratus</i> , <i>Pfr.</i> no. 258 4802 Pfr. Jay.	.....	.....	Mexico [? ubi].
51	332	...	— <i>Gruneri</i> , <i>Pfr.</i> „ 585 4845	.....	.....	Mexico.
45	286	...	— <i>rudis</i> , <i>Anton</i> , „ 535 5082	.....	.....	Mexico [sp. 216, err. typ
100	552	...	<i>Helix uncigera</i> , <i>Pet.</i> .....	.....	.....	Panama.
			<i>Caracolla u.</i> , Petit, Guér. Mag. Zool. 1838, pl. 113.			
117	684	...	— <i>Baskervillei</i> , <i>Pfr.</i> P. Z. S. 1849, p. 130	.....	.....	Vancouver's Is., <i>Lieut. Ba</i>
1	3	...	<i>Siphonaria gigas</i> , Sow. ....	.....	.....	Galapagos and Panama.
2	8	a, b	— <i>characteristica</i> , <i>Rve.</i> .....	.....	.....	Galapagos and Panama.
4	15	a, b	— <i>æquilorata</i> , [<i>Rve.</i> quasi] Gray, MS. March 1856. [<i>S. æquilorata</i> , Cpr. B. M. Cat. no. 240. Apr. 1856.]	.....	.....	Mazatlan.
7	33	a, b	— <i>amara</i> , [<i>Rve.</i> quasi] <i>Nutt. MS.</i> ... [? = <i>S. Lecanium</i> *, Phil. var.]	.....	.....	California.
2	11	...	<i>Chiton albilineatus</i> , Sow. ....	.....	.....	Guaymas.
2	7	...	— <i>articulatus</i> , Sow.	“ u. stones,	l. w.	San Blas, <i>Cum.</i> ” !
10	55	...	— <i>Sitkensis</i> , <i>Rve.</i> (non <i>Midd.</i>) .....	.....	.....	Sitka, <i>Lady Douglas</i> .
17	106	...	— <i>scaber</i> , <i>Rve.</i> .....	.....	.....	Central America.
24	161	...	— <i>proprius</i> , <i>Rve.</i> .....	.....	.....	W. C. Cent. Amer., <i>Sincla</i>
16	37	a, b	<i>Patella Cumingii</i> , <i>Rve.</i> .....	.....	.....	“ Valparaiso, <i>Cum.</i> ,” <i>Rve</i> “ Never took it,” <i>Cu</i> ipse. “ Monterey, <i>Hau</i> weg,” teste Mus. <i>Cup</i>
			[= <i>Acmaea patina</i> , Esch.]			Monterey, <i>Hartweg</i> .
16	38	a, b	— <i>clypeaster</i> , <i>Less.</i> Voy. Coq. [? = <i>A. patina</i> , var.]	.....	.....	Is. Chiloe, W. Col. [!], <i>Cu</i>
10	18	a, b, c	— <i>venosa</i> , <i>Rve.</i> .....	.....	.....	Oregon, <i>Lieut. Baskervi</i>
19	47	a, b }	— <i>exarata</i> , <i>Nutt.</i> .....	.....	.....
24	...	62ab }	The <i>P. exarata</i> , <i>Nutt.</i> , of Jay's Cat. 2814, and of Nuttall's coll. is from the Sandw. Is. The Oregon shell may be a variety of the shell called <i>Ma-</i> <i>zatlanica</i> , probably = <i>A. cassis</i> , Esch.			
24	60	a, b, c	— <i>cinis</i> , <i>Rve.</i> [= <i>A. patina</i> , var.] .....	.....	.....	Monterey, <i>Hartweg</i> .
26	67	a, b	— <i>vespertina</i> , <i>Rve.</i> .....	.....	.....	Panama and Gulf Calif.
27	69	a, b, c	— <i>toreuma</i> , <i>Rve.</i> .....	.....	.....	Monterey, <i>Hartweg</i> .

* Specimens of this species (along with the proof-sheet of *Siphonariadæ*) were sent, at Mr. Cuming's request, for the use of the author of the Conch. Ic., but no notice of it has been found in the Monograph. As Mr. Nuttall found no *Siphonaria* in California, it is presumed that Mr. Reeve's species, if of Nuttall, is from the Sandwich Islands; if “Californian,” that it is the Mazatlan *S. Lecanium*, Phil.

Pl.	Sp.	Fig.	Name.	Station.	Depth in fms.	Locality.
29	75	a, b	<i>Patella livescens</i> , <i>Rve.</i> [allied to <i>P. toreuma</i>]	.....	.....	Mazatlan.
29	76	a, b	— <i>spectrum</i> , <i>Nutt.</i> [= <i>P. scabra</i> , Gld. non <i>Nutt.</i>]	.....	.....	California.
29	78	a, b	— <i>discors</i> , <i>Phil.</i> Abbild. pl. 2. f. 6 ...	.....	.....	Mazatlan, <i>Shipley</i> .
30	81	a, b	— <i>Nuttalliana</i> , <i>Rve.</i> [= <i>A. patina</i> , var.]	.....	.....	Oregon.
31	87	a, b	— <i>verriculata</i> , <i>Rve.</i> [= <i>A. patina</i> , var.]	.....	.....	California.
34	101	a, b	— <i>leucophæa</i> , <i>Nutt.</i> [= <i>A. pelta</i> , Esch.]	.....	.....	Upper California.
35	107	a, b	— <i>umbonata</i> , <i>Nutt.</i> [= <i>A. persona</i> , var.]	.....	.....	Upper California.
36	112	a, b	— <i>Oregona</i> , <i>Nutt.</i> [= <i>A. persona</i> , Esch.]	.....	.....	Oregon.
37	119	a, b	— <i>scabra</i> , <i>Nutt.</i> [non Gld. = <i>spectrum</i> , <i>Nutt.</i>]	.....	.....	Upper California.
38	121	a, b	— <i>fenestrata</i> , <i>Nutt.</i> [= <i>A. patina</i> , var.]	.....	.....	Upper California.
40	130	a, b	— <i>navicula</i> , <i>Rve.</i> [= <i>A. mitella</i> *, <i>Mke.</i>]	.....	.....	Mazatlan, <i>Shipley</i> .
40	132	a, b	— <i>corrugata</i> , <i>Rve.</i> [= <i>P. pediculus</i> , <i>Phil.</i>]	.....	.....	Acapulco.
42	140	a, b	— <i>mamillata</i> , <i>Nutt.</i> [= <i>A. patina</i> , var.]	.....	.....	California.
8	56	...	<i>Fissurella rugosa</i> , <i>Sow.</i>	understones	l. w.	Galapagos, <i>Cum.</i>
9	64	...	— <i>densicathrata</i> , <i>Rve.</i> .....	.....	.....	?
			[? = <i>Glyphis aspera</i> , Esch.]			
3	9	...	<i>Turritella lentiginosa</i> , <i>Rve.</i>	coarse sand	5	Payta, <i>Cum.</i>
			[= <i>T. gonistoma</i> , var.]			
4	13	...	— <i>Cumingii</i> , <i>Rve.</i>	mud	11-16	Panama, <i>Cum.</i>
			[? = <i>T. tigrina</i> , var.]			Conchagua, <i>Belcher</i> .
4	15	...	— <i>Banksii</i> , <i>Gray</i> , <i>MS.</i>	sandy mud	10	Panama, <i>Cum.</i>
			[? = <i>T. gonistoma</i> , jun.]			
6	27	...	— <i>sanguinea</i> , <i>Rve.</i> .....	.....	.....	California, <i>Mus. Belcher</i> .
5	25	...	<i>Ampullaria Columbiensis</i> , <i>Sow. MS.</i> .....	.....	.....	Chiriqui, Veragua.
17	81	...	— <i>Cumingii</i> , <i>King</i> , <i>Zool. Journ.</i> vol. v. p. 344.	.....	.....	Is. Taboga, Panama.
21	99	a, b	— <i>cerasum</i> , <i>Hantl. Conch. Misc.</i> .....	.....	.....	Mexico †.
4	12	...	<i>Haliotis corrugata</i> , <i>Gray</i> , in <i>Wd.</i> , pl. 8. f. 5	.....	.....	California.
7	23	...	— <i>Cracherodii</i> , <i>Leach</i> , <i>Zool. Misc.</i> 1814, vol. i. p. 131.	.....	.....	California.
			= <i>H. glaber</i> , <i>Schub. & Wagn.</i>			
8	26	...	— <i>Californiensis</i> , <i>Swains. Zool. Illustr.</i> vol. ii. p. 80.	.....	.....	California.
5	18	...	<i>Turbo tessellatus</i> , [<i>Rve. quasi</i>] <i>Kien.</i> .....	.....	.....	California.
12	57	...	— <i>marginatus</i> , <i>Nutt. MS.</i> .....	.....	.....	Upper California [?].
4	20	a, b	<i>Neritina Californica</i> , <i>Rve.</i> .....	.....	.....	Gulf of California.
15	71	a, b	— <i>Listeri</i> , [<i>Rve. quasi</i>] <i>Pfr.</i> .....	.....	.....	Cuba, Nicaragua.
25	109	...	— <i>Michaudi</i> , <i>Récl. P. Z. S.</i> 1841, p. 315	.....	.....	Panama.
28	126	a, b	— <i>Listeri</i> , [<i>Rve. quasi</i>] <i>Pfr.</i> [non eadem]	.....	.....	St. John's Riv., Nicaragua.
10	39	a-c	<i>Cypræa onyx</i> , <i>Linn.</i> = <i>C. adusta</i> , <i>Lam.</i> ...	.....	.....	San Diego [? auct.].
			[= <i>C. nymphae</i> , <i>Ducl.</i> = <i>C. pulla</i> , <i>Gmel.</i> (non <i>Gask.</i>) teste <i>Jay.</i>]			
13	61	...	— <i>punctulata</i> , <i>Gray</i> , <i>Z. Journ.</i> i. 387..	under st.	.....	Panama, <i>Cum.</i>
18	94	...	— <i>albuginosa</i> , <i>Mawe</i> , <i>Z. Journ.</i> i. 510..	.....	.....	California.
21	113	...	— <i>Solandri</i> , <i>Gray</i> , <i>Sow. Conch. Ill.</i> no. 128. f. 43.	.....	.....	California.
21	119	...	— <i>Maugeriæ</i> , <i>Gray</i> , <i>Sow. Conch. Ill.</i> no. 111. f. 30.	.....	.....	Galapagos, <i>Cum.</i>
23	128	a, b	— <i>Californica</i> , <i>Gray</i> , <i>Z. Journ.</i> iii. 365.	.....	.....	California.
25	141	...	— <i>rubescens</i> , <i>Gray</i> , <i>P. Z. S.</i> 1832, p. 185.	under st.	.....	Galapagos, <i>Cum.</i>

* It is to be regretted that the author of the *Conch. Ic.*, when describing so many new species of Limpets from the West coast of America, did not avail himself of the previous labours of Eschscholtz and Menke in the same field.

† Supposed to be from the Reigen (Havre) Col., as well as other species described from Mexico: but no dependence can be placed on the localities of the shells sold at the auctions: *v. antea*, p. 242.

Pl.	Sp.	Fig.	Name.	Station.	Depth in fms.	Locality.
25	142	a, b	Cypræa suffusa, Sow. Conch. Ill. n. 126. f. 41. = <i>C. armandina</i> , Ducl.*	.....	.....	Galapagos, Cum.
13	70	...	Conus pyramidalis, Rve.	sandy mud	7-10	Caraccas & Montija, Cu
14	72	a, b	— brunneus, Sow. P. Z. S. 1834	clefts of rks.	.....	Puert. Pt., Pan., Gal., Ca
14	75	...	— vittatus, Lam.	coarse sand	7-11	Bay Pan. & Montija, Cu
22	126	...	— Mahogani, Rve. P. Z. S. 1843	sandy mud	.....	Salango, Cum.
			[? <i>C. interruptus</i> , var.]			
26	143	...	— minimus, Linn. ....	.....	.....	Ceylon.—Is. Annaa, Cu
			var. β . = <i>C. tiaratus</i> , Brod.	pools on sds.	.....	Galapagos, Cum.
26	146	...	— regularis, Sow. Conch. Ill. f. 45 ...	soft mud {	23	Gulf Nicoya.
27	153	...	— concinnus, Brod. P. Z. S. 1833.	on the sands	7	Bay Panama, Hinds.
9	33	a, b	Natica alabaster, Rve. [? = <i>N. uber</i> , var.]	.....	.....	"B. of Calif.," Babb, R.
2	7	a, b	— Chemnitzii, Récl. MS. 1855, non Mke.	.....	.....	Mazatlan.
4	12	...	— perspicua, Récl. in Pet. Jour. Conch. vol. i. p. 379. pl. 14. f. 1, 2.	.....	.....	Panama.
10	40	a, b	— bifasciata, Gray'	sand	l. w.	Mouth of Oregon, Lieut.
13	54	...	— uber, Val.	muddy sand	4	Baskerville.
19	85	a, b	— unimaculata, Rve. ....	.....	.....	Guaymas, Mr. Babb, R. I
4	8	a-d	Harpa rosea	sand	dp. w.	Casma, Peru, Cum.
4	9	a-c	— crenata, Rve. = <i>H. rosea</i> , var. Kien. = <i>H. Rivoliana</i> , Less. [= <i>H. testudin-</i> <i>nalis</i> + <i>H. Mexicana</i> , teste Jay.]	sandy mud	d. w.	Mazatlan, Lieut. Shipley.
4	5	...	Dolium ringens, Sow. Tank. Cat. App. p. xxi. = <i>Malea latilabris</i> , Val.	.....	.....	Senegal.
8	18	a, b	Cassia abbreviata, Lam. + <i>C. lactea</i> , Kien. + <i>C. centiquadra</i> + <i>C. doliata</i> , Val.	.....	.....	d. w. Acapulco, Cum. [!]
1	5	a, b	Oniscia tuberculosa, Sow. Gen. p. 2 var.	.....	.....	Payta, Cum.
1	1	a, b	Voluta Cumingii, Brod. P. Z. S. 1832 ...	.....	.....	Acapulco.
5	26	...	Turbinella castanea, Rve.	crev. of rks.	.....	Gulf California, Mus. Cur
			= <i>T. acuminata</i> , Rve. Conch. Syst.: non Gray in Wood Suppl.			Gulf Fonseca, San Salvado
7	37	...	— cerata, Gray.	under st.	l. w.	Panama, Cum. [Cum
8	40	...	— tectum, Gray [Cuma]	sandy mud	10	Galapagos, Cum.
1	3	...	Fasciolaria princeps, Sow. ....	.....	.....	Bay Panama, Cum.
1	1	a, b	Oliva angulata, Lam. = <i>Voluta incrassata</i> , Dillw. = <i>O. azemula</i> , Ducl.	sandy mud	9	Peru, Cum.
10	16	a-i	— reticularis, Lam. ....	.....	.....	Gulf Nicoya, Cum.
			"vars. = <i>O. araneosa</i> , Lam. + <i>O. Timo-</i> <i>ria</i> + <i>O. venulata</i> + <i>O. obesina</i> + <i>O.</i> <i>pindarina</i> , Ducl."	.....	.....	Is. Granada, West Indies
11	19	a, b	— Cumingii, Rve. ....	.....	.....	Gulf of California, Donne.
18	36	...	— testacea, Lam.	sandy mud	6	Gulf Calif., Donnet.
20	48	...	— biplicata, Sow. Tank. Cat. App. p. 33	sands	l. w.	Real Llejos, Cum.
23	63	a, b	— lineolata, "Gray, Wood Suppl. = <i>O. dama</i> , Ducl."	.....	.....	Monterey, Hinds.
			[<i>O. lineolata</i> , Gray, Z. B. V. = <i>O. dama</i> , Mawe, in Wood Suppl.]			California.
25	73	a-e	— undatella, Lam. + <i>O. nedulina</i> + <i>O.</i> <i>ozodina</i> , Ducl.	sand & mud banks	l. w.	Bay Panama, Cum.
25	74	a, b	— anazora, Ducl.	sandy mud	10	Xipixapi, Cum.
26	80	a-c	— tergina, Ducl.	sand banks	.....	Conchagua, Cum.
4	13	...	Triton clandestinus, Chemn.	sandy mud under st.	6	Philippines, Cum.
20	97	...	— pagodus, Rve. [Nassa] ....	.....	.....	Galapagos, Cum.
20	99	...	— pictus, Rve.	under st.	l. w.	Bay Montija, Cum.
1	3	...	Purpura patula, Linn. ....	.....	.....	Galapagos, Cum.
6	28	a, b	— bicostalis, [Rve. ? non] Lam.	on rocks	l. w.	Philippine Is., Cum.

* Whether this and *C. subrostrata* (Rve. pl. 26. f. 147) be the Pacific or the Caribbæan species, or whether they are identical, has not yet been decided.—Vide B. M. Maz. Cat. p. 379.

Pl.	Sp.	Fig.	Name.	Station.	Depth in fms.	Locality.
4	23	...	<i>Ricnula alveolata</i> = <i>Purpura a.</i> , Kien. Icon. Conch. p. 42. pl. 9. f. 23. [Non Rve.]	.....	.....	Panama, Cum.
1	1	...	<i>Monoceros uncarinatum</i> , Sow. C. I. f. 5. "= <i>P. spicata</i> , Blainv., Kien. = <i>P. en-</i> <i>gonata</i> , Conr." [v. antea, p. 201.]	.....	.....	California.
1	2	...	— <i>punctatum</i> , Gray, Z. B. V. p. 124... "= <i>P. lapilloides</i> , Conr." [v. p. 201.]	.....	.....	Is. Cocos, N.W. Mexico, Capt. Colnett.
6	39	...	<i>Buccinum pristis</i> , Desh..... = <i>B. serratum</i> , Dufresne. = <i>B. Northiæ</i> , Gray, MS.	.....	.....	St. Elena.
6	43	...	— <i>pusio</i> , Linn. ....	.....	.....	Honduras, California. [?]
7	50	...	— <i>pagodus</i> , Rve.	clefts of rks.	1. w.	Island Taboga, Cum. v. r.
3	10	...	<i>Pyrula subrostrata</i> , Gray, Z. B. V. pl. 36. f. 15. = <i>Buccinum subrostratum</i> , Wood. = <i>Fusus lapillus</i> , Brod. & Sow.	sandy mud	12	Bay Montija, Cum.
2	9	...	<i>Fusus</i> * <i>Dupetit-Thouarsii</i> , Kien. ....	.....	.....	Galapagos, Cum.
16	61	...	— <i>Oregonensis</i> , Say = <i>Triton O.</i> , Say.	.....	.....	N. America [? ubi].
77	...	...	— <i>Mexicanus</i> , Rve.....	.....	.....	Mexico [? ubi].
19	7	...	<i>Murex monoceros</i> , Sow. P. Z. S. 1840 ... ? = <i>M. Nuttalli</i> , Conr.	.....	.....	California.
3	12	...	— <i>foliatus</i> , Gmel.	rky. places	.....	Sitcha, Eschscholtz.
24	98	a, b	— <i>salebrosus</i> , King	under st.	.....	Panama, Cum.
28	128	...	— <i>horridus</i> , Brod. P. Z. S. 1832 = <i>Fusus h.</i> , Sow. Conch. Ill. f. 29. = <i>M. Bovinii</i> , Kien.	sandy mud	8-12	St. Elena and Panama.

63. The Monographs of Kiener, in his "Coquilles Vivantes," are generally executed with great care, and are extremely valuable for the identification of species. The writer does not fall into the common error of minute division of species: on the other hand, he sometimes unites what will be almost universally considered as distinct. His judgment is not always correct on small shells, as when he thinks that *Cerithium trilineatum* of Phil. ought without doubt to be considered as a dextral variety of *C. perversum*. For the identification of the Lamarckian species, his work is extremely valuable. But on points connected with geographical distribution, the following list will show that, unconfirmed, it cannot be regarded as an authority. The "California" of French authors, as of English, generally applies to the W. Mexican fauna. Unfortunately, there are no dates, by which questions of the priority of nomenclature may be decided.

No. Page. Plate. Fig.

- ? ? 30 1. *Turbo funiculosus*, Kien. [= *T. ? fluctuatus*, var. P.Z.S. 1855, p. 234.]
- ? ? 14 2, 2a. *Trochus inermis* [quasi] Gmel.
- 22 29 4 2. *Turritella tigrina*, Kien.
- 25 36 13 3. *Cerithium maculosum*, Kien. [Named *adustum* on the plate.]
S. Sea, Acapulco, Galapagos.
- 26 37 13 2. — *adustum*, Kien., non Sow. [Named *maculosum* on the plate.]
Indian Ocean, Red Sea. [Probably correct.]
- 31 38 7 3. *Cypræa Sowerbyi*, Kien. = *C. zonata*, Sow. non Chemn. Calif.
- 51 59 8 2. — *Lamarckii*, Ducl., Val., Rve., p. 334. Acapulco. [Not so given in Val., Rve.]
- 133 146 22 4. — *lathyrus*, Dufresne. = *C. sanguinea*, var. Pacific.

* *Fusus corrugatus*, Rve. pl. 20. sp. 84, a b, is said to be = *Trophon muriciforme*, King, Zool. Journ.

No.	Page.	Plate.	Fig.	
138	152	45	3, 3a.	<i>Cypræa subrostrata</i> , Gray. Isle of France.
136	150	52	1.	— <i>candidula</i> , Gask. W. Mexico.
9	14	7	2.	<i>Cancellaria goniostoma</i> , Sow. = <i>C. brevis</i> , Sow., teste Kien.
12	18	8	2.	— <i>chrysostoma</i> , Sow. Panama, Peru, Galap.
24	18	16	1.	<i>Pleurotoma funiculata</i> , Val. San Blas.
37	59	23	1.	— <i>maura</i> , Val. [= <i>P. Melchersi</i> , Mke.] Mazatlan, Botta.
26	33	15	2.	— <i>Botta</i> , Val. [= <i>P. incrassata</i> , Sow.] Mazatlan, Botta. 1 sp.
115	139	55	1.	<i>Conus Lorenzianus</i> , Chemn. Acapulco.
7	10	4	7, 7a.	<i>Solarium variegatum</i> , Lam. N. Holland, Manilla, N. Ireland. "= <i>S. cyclostomum</i> + <i>S. Ethiops</i> , Mke. + <i>S. tessellatum</i> , Desh."
18	27	12	2.	<i>Pyrula ventricosa</i> , Val. San Blas.
10	19	8	15.	" <i>Cassis coarctatum</i> , Sow., Les côtes du Perou à Acapulco."
7	11	7	1.	<i>Ranella bufonia</i> , Lam. Red Sea, Seychelles, N. Ireland, Calif.
13	19	11	2.	— <i>semigranosa</i> , Lam. " = <i>R. calata</i> , Brod." Panama.
23	31	8	1.	— <i>argus</i> , Lam. " = <i>Triton Ranelliformis</i> , King, Z.J. p. 347. Var. = <i>Ranella vexillum</i> , Sow. Conch. Ill. pl. 1. f. 3." Chili.
27	36	4	2.	— <i>anceps</i> , Lam. = <i>R. pyramidalis</i> , Brod. P.Z.S. 1832, p. 194.
22	30	15	1, 2.	— <i>scabra</i> , Grateloup. Peru.
16	25	16	1.	<i>Turbinella cerata</i> , Griff. Mazatlan, common. <i>Du Petit Thouars</i> .
17	26	16	2.	— <i>tubercularis</i> , Griff. (A few sp. from the voyage of <i>Du Petit Thouars</i> .) Mazatlan.
25	36	20	1	— <i>cingulata</i> . [Operculum described. Yet Reeve, after this, places the shell under <i>Monoceros</i> .]
61	98	26	70.	<i>Purpura chokolatum</i> , Ducl. Coasts of California.
71	114	37	87.	— <i>biserialis</i> , Blainv. Shores of Mazatlan.
40	64	17	49.	— <i>bezoar</i> , Bl. China and California.
49	78	20	58.	— <i>columellaris</i> , Lam. Red Sea and Pacific, Chili, California.
...	81	21	60b.	— <i>callosa</i> , var. [= <i>P. triserialis</i> .]
68	109	28	74.	— <i>Grayi</i> , Kien. " = <i>Mon. grandis</i> , Gray." Pacific.
92	141	44	102.	<i>Monoceros lugubris</i> , Sow. Gen. no. 5. f. 3. " = <i>M. cymatum</i> , Tank. Cat. 1888. = <i>Buccinum denticulatum</i> + <i>armatum</i> , Wood Suppl." Peru and California.
24	23	9	28.	<i>Buccinum serratum</i> . [= <i>Northia pristis</i> .] "Habite la Mer du Sud, sur les côtes de la Californie," Eydoux.
4	2	10	2.	<i>Columbella hamastoma</i> , Sow. California.
5	3	1	2.	— <i>paytalida</i> , Ducl. " = <i>C. rustica</i> , Sow. Gen. f. 3. non Lam." = <i>C. fuscata</i> , Sow. California.
7	10	3	3.	— <i>meleagris</i> , Ducl. San Blas.
9	14	2	1, 2.	<i>Pyrula patula</i> . [N.B. The operculum of <i>P. melongena</i> , as figured by Kiener, is broader in proportion than that of <i>P. patula</i> .] [He thinks, however, that the species should be reunited.]
11	15	11	...	<i>Fusus Dupetithouarsi</i> , Kien. California. [Galap., Cuming, Rve.]
5	9	10	2.	<i>Murex messorius</i> , Sow. " = <i>motacilla</i> , B., Lam. + <i>rectirostrum</i> , Sow. + <i>nigrescens</i> , Sow." Senegal.
31	43	19	2.	— <i>corrugatus</i> , Sow. Red Sea, California.
39	55	21	2.	— <i>oxyacanthus</i> , Sow. S. Sea, California.

64. In a paper by Dr. L. Pfeiffer, "Ueber die geographische Verbreitung der Heliceen," in the Zeit. f. Mal. 1846, pp. 74-79, 87-96, occur the following lists of land shells from the western districts of North America:—

Page

94.	From Oregon	.....	<i>Helix Vancouverensis</i> , Columbiana, fidelis.
94.	From California	.....	— <i>areolata</i> , <i>levis</i> , <i>tudiculata</i> , <i>Sagraiana</i> , <i>Townsendiana</i> , <i>Californiensis</i> , <i>Columbiana</i> , <i>Dupetithouarsii</i> .
94.	From Mexico	.....	— <i>lucubrata</i> , <i>Oajacensis</i> , <i>Buffoniana</i> , <i>Humboldtiana</i> , <i>Mexicana</i> , <i>bicincta</i> , <i>tenuicostata</i> , <i>Dkr.</i> , <i>griseola</i> , <i>Hindsi</i> , <i>ventrosula</i> .
94.	"	"	<i>Dædalochila implicata</i> .
94.	"	"	<i>Polygyra contortuplicata</i> .

- Page.
 94. *From Central America* . . . *Helix Ghiesbreghti*, griseola, labyrinthus, plicata, quadridentata, Euryomphala, quinquestrigata.
 94. *From Real Llejos* — spirulata, Nystiana.
 94. *From Panama* — Antoni, uncigera.

Many of the species quoted from Mexico and Central America probably belong to the east side of the mountain range. In the same work, pp. 158–160, are described the following land shells, brought from the Mexican Republic by Liebmann. They are probably from the eastern side:—

Page	Page
158. <i>Helix caduca</i> , Pfr.	159. <i>Achatina Liebmanni</i> , Pfr.
158. <i>Bulimus Liebmanni</i> , Pfr.	159. — <i>streptostyla</i> , Pfr.
158. <i>Achatina coronata</i> , Pfr.	159. <i>Cylindrella Liebmanni</i> , Pfr.

In the Zeit. f. Mal. for 1844, 1845, occur the following:—

Page.	No.	
1844. 35	...	<i>Ampullaria malleata</i> , Jonas. Tabasco, Mexico.
1845. 152	1	<i>Helix Buffoniana</i> , Pfr. Rio Frio, Mexico.
„ 152	2	— <i>lævis</i> , Pfr. California, Hinds.
„ 154	7	— <i>areolata</i> , Sow. MS. California, Hinds.
„ 168	7	<i>Halotis Kantschatkana</i> , Jonas. Near Island of Oonalaszk.

In the Zeit. f. Mal. 1847, pp. 1, 2, Dr. Menke describes the two following species, brought by Liebmann from Mexico:—

Cylindrella teres, Mke. Prov. of Puebla. | *Cylindrella Pfeifferi*, Mke. Tehuacan.

In the Zeit. f. Mal. 1847, pp. 93–96, Dr. Philippi describes the following freshwater shells, brought from Mexico and Central America by Largilliert and Liebmann:—

No. 32.	<i>Unio cyrenoides</i> , Phil.	Lake Nicaragua (<i>Larg.</i>).
„ 34.	— <i>Aztecorum</i> , Phil.	Mexico (<i>Lieb.</i>).
„ 35.	— <i>Mexicanus</i> , Phil.	Mexico (<i>Lieb.</i>).
„ 36.	— <i>Liebmanni</i> , Phil.	Mexico (<i>Lieb.</i>).

In the mixed collections of shells described by Philippi in the Zeit. f. Mal. 1848, 1849, occur the following species:—

Page.	No.	
19	81	<i>Cerithium (Potamides) Hegewischii</i> , Ph. Mexico, <i>Hegewisch</i> . Resembles <i>Cerithidea varicosa</i> , Sow. [but it is not stated in which ocean it was found.]
127	53	<i>Trochus (Phorcus) Panamensis</i> , Phil. Panama, <i>E. B. Philippi</i> .
129	55	<i>Adeorbis scaber</i> , Phil. Panama. Found in <i>Avicula margaritifera</i> by <i>E. B. Philippi</i> .
130	57	<i>Anodonta cornea</i> , Phil. Nicaragua, <i>Largilliert</i> .
„	58	— <i>atrovirens</i> , Phil. „ „
„	59	— <i>Nicaraguæ</i> , Phil. „ „
141	79	<i>Bulla Panamensis</i> , Phil. Panama, <i>E. B. Philippi</i> .
143	84	<i>Cerithium filiosum</i> , Phil. California.—Mus. <i>Largilliert</i> .
145	87	<i>Donax Panamensis</i> , Phil. Panama, <i>E. B. Philippi</i> .
149	96	<i>Kellia pulchra</i> , Phil. West coast of America.
„	97	<i>Litorina parvula</i> , Phil. Panama, <i>E. B. Philippi</i> .
„	98	— <i>phasianella</i> , Phil. „ „
153	7	<i>Macra velata</i> , Phil. „ „ ?“ <i>AnMulinia exalbida</i> , Gray.”
163	33	<i>Petricola robusta</i> , Phil. „ „ In <i>Avicula margaritifera</i> . [This fortunately appears to be one of the many forms of <i>Petricola robusta</i> , Sow.]
164	34	<i>Phasianella perforata</i> , Phil. Panama and Payta, <i>E. B. Philippi</i> .
175	59	<i>Tellina Panamensis</i> , Phil. Panama, <i>E. B. Philippi</i> .
176	62	<i>Unio nuculinus</i> , Phil. Nicaragua, <i>Largilliert</i> .

- Page. No.
 188 67 *Trochus (Calcar) erythrophthalmus*, Phil. = *T. olivaceus*, Wood. California. [Described under the erroneous impression that the *T. olivaceus* of Wood's Cat. was the white mouthed shell. = *T. inermis*, Gmel. teste Kien.]
 1849.
 148 ... *Trochus Belcheri*, Phil. Mus. Hanley. Voyage Belcher.
 149 ... — *callichrous*, Phil. " " " "
 150 ... — *callicoccus*, Phil. " " " "
 168 ... — *metaformis*, Phil. " " " "
 170 ... — *neritoides*, Phil. " " " "
 171 ... — *nucleus*, Phil. " " " "
 191 ... — *suavis*, Phil. " " " "
 1850.
 84 48 *Succinea brevis*, Dunker. Mexico.
 1851.
 61 73 *Buccinum Panamense*, Phil. Panama, Payta, E. B. Philippi.
 71 94 *Cyrena inflata*, Phil. Costa Rica.—Mus. Busch.
 74 100 *Cytherea solidissima*, Phil. California. [= *Trigonella crassatelloides*, Conr.]
 75 2 *Donax obesa*, Phil. California. [= *D. Californicus*, Conr.]
 123 47 *Terebra Belcheri*, Phil. "... ex itin. *Belcheri*."
 126 52 *Venus distans*, Phil. Panama, E. B. Philippi.
 1852.
 79 13 *Avicula (Meleagrina) fimbriata*, Dkr. Central America.
 [= *Margaritiphora Mazatlanica*, Hanl.]
 1853.
 112 40 *Lutraria inflata*, Dkr. California, teste Bernhard.

In the "Malacozoologische Blätter für 1854," which is a continuation of the Zeit. f. Mal. by the same editors, occurs the following:—

1854. Page 28. *Pyramidella bicolor*, Mke. [*Obeliscus*.] Calif., teste J. W. E. Müller.

65. The following are from Philippi's Monographs in Kuster's edition of Martini's Continuation of Chemnitz's 'Conchilien Cabinet':—

Kust. Mart., p. 57. no. 60. pl. 9. f. 4. *Natica otis*, Brod. & Sow. Mazatlan and Marquesas.

Kust. Mart., p. 78. pl. 12. f. 1-5. *Natica maroccana*, Chemn. Morocco, Chemn., W. Indies, Chemn. Guinea, Largilliert. E. Africa, Rodatz. W. Mexico, Pfr. Panama, C. B. Adams. (Var. *lurida*), Havanna, Sandw. Is., Lieukieu Is., Largilliert. (Var. *unifasciata*), Peru, Petit.

66. Besides the authorities given in published works, the following have been noted from the British Museum Collection:—

- Saxicava arctica*. N. Zealand. Capt. Isl. C. Ede, Esq. (used by the natives for money).
 Stokes. B. M.
Tellina nasuta. Icy Cape. *Litorina fasciata*. Sandwich Is. Lieut. Strickland.
Donax punctatostratus. S. America. *Cerithium ocellatum*, Brug. Madagascar. (Compare with *C. stercus-muscarum*.)
 Capt. Ld. Byron. *Odostomia*. Monterey. Capt. Beechey. (Probably *O. gravis*, Gould.)
Donax scortum. San Blas. [? ubi.] *Eulima distorta*. St. Vincent's, W. I.
Tellina rufescens. St. Domingo. Sir R. Schomburgk. *Natica bifasciata*, Gray. W. Columbia.
Pinna ? rudis. Panama. Miss Saul. *Marginella curta*, Sow. jun. Mazatlan.
Chiton, sp. ind. California. *Fusus ? Dupetithouarsii*, var.
Chiton vestitus, Sow. Capt. Beechey. *Trophon labiosa*, Gray. Callao.
Bulla ? nebulosa. Pedro Blanco, Mexico. *Nitidella cribraria*. S. America. Capt. King.
 Mr. J. Robertson. *Pisania ? ringens*. Pernambuco. J. P. G. Smith.
Physa elata. California. Dr. Sinclair.
Fissurella mutabilis, Swains. Galapagos.
Dentalium pretiosum. Central America.
 Dr. Sinclair.
Dentalium, like *entalis*. Vancouver's

67. The following species and localities have also been noticed in Mr. Cuming's collection:—

Petricola denticulata. Mazatlan.
Thracia plicata, Desh. W. N. America.
Periploma Leana. Mazatlan. Capt.
 Keppell and Mr. Ede, R.N.
Lyonsia nitida. "China Seas, Belcher:"
 probably an error.
Tellidora Burneti. Salango and St.
 Elena, Cuming.
Donax assimilis. Conchagua.
Macra angulata: plentiful from the
 Gulf, rare further south, teste Cuming.
Crassatella gibbosa and *undulata*. West
 Columbia.
Cardium Belcheri. Panama, Cuming.
Diplodonta semiaspera. St. Thomas, W.I.
 Merk.
Lucina fenestrata. Monte Xti, San Blas.
Kellia suborbicularis. Is. Muerte (Guay-
 aquil), sandy mud, 11 fms. Concep-
 tion, Chili.

Modiola capax. Galapagos, Cuming.
Helix vineta, Val.; Baskervillei, Pfr. From
 California and the neighbourhood.
Acmaea gigantea=*grandis*, Gray. Mon-
 tery, exposed situations.
Omphalius Californicus, A. Ad. More-
 ton Bay.
Chlorostoma funebrata. California.
Ovulum gibbosum. Panama, Cuming.
Torinia variegata. Is. Annaa, coral reefs.
Lathyrus armatus. California.
Leucozonia Californica. Gulf of Cali-
 fornia, Lieut. Shipley: appears a *La-
 thyrus*.
Ranella, like *vexillum*. Mazatlan.
 —? *tuberculata*, var. Mazatlan (Havre
 Col. teste Powis).
Nassa nodocincta, A. Ad. Galapagos.
Rhizocheilus asper. Gulf of California.
Typhis grandis. California.

68. Lastly, the following have been collected from various sources:—

Gray, Syst. Ar. Moll.* p. 52 (*Ianthinidæ*).
Recluzia Rollandiana. Mazatlan.
 Gray, Syst. Ar. Moll. p. 117. *Garnotia
 solida*, genus described. Mazatlan.
 Gray, Syst. Ar. Moll. *Scurria mitra*, genus
 described. Mazatlan.
 Phil. Arch. 1847, p. 63. pl. 3. f. 7. *Am-
 phichæna Kindermannii*. Mazatlan.
 (Appears to be a *Psammobia*.)
Tellidora Burneti. W. Columbia, Lieut.
 Freer.—Bristol Mus.
Dione lupinaria. Valparaiso, H. Babb,
 R.N.—Bristol Mus.
Cardita affinis. Cubaco, Lieut. Wood.
 —Bristol Mus.
Lithophagus aristatus. Panama.—Bris-
 tol Mus.
Lithophagus aristatus. Algiers, M'An-
 drew.
Isognomon Chemnitzianum. Panama, L.
 Wood.—Bristol Mus.
Chiton consimilis. Upper California.
Paludina nuclea, Lea. Sacramento River.
Anodon angulatus, Lea. " "
 " *Oliva splendidula*. Mazatlan, — Babb,
 Esq., R.N."—Bristol Mus.= *O. Mel-
 chersi*.
Conus concinnus. Bay of California,
 Capt. Babb.
Purpura coronata. California.
Turritella sanguinea. California.
Cassis abbreviata. Acapulco.
Marginella imbricata. Acapulco.
Litorina coronata. San Blas.—Mus. Nutt.

69. Having now presented an abstract of all the original sources of information (so far as known to the writer), we proceed to embody them in a table, arranged at the same time geographically† and zoologically, so as to exhibit in one view as much of the foregoing materials as may be looked upon as tolerably satisfactorily made-out. Doubtful species, or those whose locality rests on insufficient evidence, are not included. Where the evidence is good, but suspected, the name, if inserted, is in []; where it is poor, but *à priori* correct, it is enclosed in (). Species entirely omitted can be written in by the student, from the foregoing lists, if he is satisfied with the evidence. All names printed in the same horizontal line are regarded as probably conspecific; synonyms being distinguished by a single (.

* Of this work, "Systematic Arrangement of Mollusca" (with figures of the teeth of Gasteropoda), now passing through the press, Dr. Gray obligingly allowed me the use of the proof-sheets. The main grouping of the Gasteropoda has been followed to a considerable extent.

† In the second column, A. signifies *Asia* (chiefly Kamtschatka and the Sea of Okhotsk; B. *Behring Sea*. In the last column, E. signifies the coasts of *Ecuador* and *Peru*; C. those of *Chili*.

MOLLUSCA OF THE WEST COAST OF NORTH AMERICA.

Class BRYOZOA.

Zoological Divisions. FAMILIES, Genera and Sub- genera.	Asia & Behring Sea.	NORTHERN FAUNA.				TROPICAL FAUNA.				South America.
		Arctic.	Oregon.	Upper California.	Lower California.	Gulf of California.	Central America.	Panama.	Galapagos.	
MEMBRANIPORIDÆ: Mem- [branipora Lepralia... sp.	.....	denticulata. gothica. atrofusca. trispinosa. Mazatlanica. rostrata. marginipora. hippocrepis. humilis. adpressa .....	.....	.....	.....	E.
CELLEPORIDÆ: Cellepora...	sp. papilliformis. cyclostoma. sp. intricata. sp.	.....	.....	.....	.....
DISCOPORIDÆ: Defrancia...
TUBULIPORIDÆ: Tubulipora

Class TUNICATA.

Unknown.

Class PALLIOBRANCHIATA.

DISCINIDÆ: Discina .....	.....	.....	.....	Evansii.	.....	Cumingii	Cumingii	E.
LINGULIDÆ: Lingula .....	.....	.....	.....	.....	.....	.....	.....	.....
TEREBRATULIDÆ: Waltheimia.	.....	.....	.....	.....	albida.	.....	.....	.....
.....	.....	.....	.....	.....	(California).	.....	.....	.....
TEREBRATULA .....	.....	.....	.....	.....	pulvinata.	.....	.....	.....
[Chonella.	.....	.....	.....	.....	canrena.	.....	.....	.....
RHYNCHONELLIDÆ: Rhyn-A.	.....	.....	.....	.....	psittacea.	.....	.....	.....

Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(PETRICOLIDÆ: ? Naranio)										
MYADÆ: <i>Mya</i>	A.	arenaria.	præcisa.			scobina.				
	? A.		generosa.			sp.				
<i>Panopea</i>						? sp.				
<i>Lutraria</i>				maxima.						
<i>Platiodon</i>		maxima		cancellata.	cancellata.					
<i>Cryptodon</i>				Nuttalli.						
<i>Sphenia</i>				Californica ...	Californica.	fragilis.				
						2 sp.				
CORBULIDÆ: <i>Potamomya</i>								æqualis.		
								inflata.		
								trigonalis.		
<i>Corbula</i>				polychroma.		polychroma.				
						2 sp.				
				[bicarinata]		bicarinata.	bicarinata.	bicarinata.	E.	
						tenuis	tenuis	tenuis.		
						obesa	obesa	obesa.	E.	
						biradiata	biradiata	biradiata	E.	
						? ovulata	ovulata	ovulata	E.	
						pustulosa	pustulosa	pustulosa.		
						ventricosa	ventricosa	ventricosa.		
							Boivinea.			
				[nasuta]			nasuta		E.	
							marmorata.			
							fragilis.			
							radiata.			
							nuciformis			
							speciosa	speciosa.	E.	
								rubra.		
								2 sp.		
ANATINIDÆ: <i>Thracia</i>				curta.						
<i>Tyleria</i>										
<i>Lyonsia</i>			bracteata.							
				Californica ...	(nitida.	squamosa.				
						fragilis.				
						sp.				

Zoological Divisions. (TELLINIDE: Tellina).....	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
	A. B. nasuta.....	nasuta	nasuta .....	.....	nasuta.					
		(inquinata). California.								
		Bodegensis ...	Bodegensis.	Bodegensis.	secta.					
		secta.....	secta.....	secta.....	secta.					
			alta.		vicina.					
					pura	pura .....	.....	pura.		
						gemma.				
						Mazatlanica.				
						Broderipii.				
						straminea.				
						donacilla.				
						regularis.				
						lamellata.				
						delicatula.				
						denticulata.				
						3 sp.				
						rufescens			E.	
						eburnea			E.	
						Dombeyi		Dombeyi	E.	
						punicea		punicea	E.	
						felix		felix.	E.	
						Cumingii		Cumingii.		
						puella		puella.		
						brevirostris ...				
							brevirostris.			
							regia.			
							virgo.			
							gubernaculum			
							elongata.			
							plebeia.			
							brevirostris.			
							petalum.			
							insculpta.			
							princeps			E.
							vicina	vicina.		
							laceridens	laceridens	E.	
							rubescens	rubescens	E.	

<i>Strigilla</i></
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Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(VENERIDÆ: Venus)						?crenifera..... Columbiensis..... amathusia..... gnidia..... distans..... multicostata.....	?crenifera..... Columbiensis..... amathusia..... gnidia..... distans..... multicostata.....			E. E. E.
<i>Anomalocardia</i>						Kellettii..... fuscolineata..... pulicaria..... neglecta.....	Kellettii..... fuscolineata..... pulicaria..... neglecta.....			E. E.
?Types				diversa. tumida. straminea.....	straminea. gracilis.	subimbricata..... subrugosa.....	subimbricata..... subrugosa.....	ornatissima. 2 sp. subrugosa.....		E. E.
ASTARTIDÆ: <i>Astarte</i>						squamosa..... histrionica..... grata.....	histrionica..... (discors.....	(pectunculoides..... grata..... tenerrima.		E. E.
<i>Gouldia</i>	B. (corrugata).					varians. Pacifica..... margarita. subtrigona.	(discors.....	Pacifica.		
<i>Circe</i>						sp.		gibbosa.....		E.
<i>Crassatella</i>						Californica.				
<i>Trapezium</i>				Californicum.....	Californicum.					
<i>Cardita</i>			ventricosa.			Cuvieri. crassa. affinis..... laticostata.....	Cuvieri. crassa. affinis..... laticostata.....	affinis. laticostata..... radiata.....		E. E.
									incrassata. varia.	

Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(LUCINIDÆ: <i>Lucina</i>)						excavata. pectinata. cancellaris. Mazatlanica. prolongata. 3 sp. fenestrata. eburnea tigerrina				E. E.
<i>? Fimbria</i>				orbella	orbella.	sp.	Artemidis.	eburnea		
DIPLODONTIDÆ: <i>Diplo donta</i>						semiaspera. subquadrata. obliqua.	calculus.			
<i>Felania</i>						serricata.	cornea.	tellinoides.		
KELLIADÆ: <i>Kellia</i>				Laperousii.		suborbicularis ? rubra. trigonalis. oblonga. sp.		suborbicularis		E.
<i>Lasea</i>						Clementinum. Dionaeum. umbonatum. sublævis. elliptica. subquadrata. sp.				
<i>Lepton</i>										
<i>Pythina</i>										
<i>Montacuta</i>										
<i>Scintilla</i>								Cumingii.		
CYCLADIDÆ: <i>Cyclas</i>										
<i>Cyrena</i>						olivacea. Mexicana. insignita.				

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Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
SPONDYLIDÆ: <i>Hinnites</i> ... <i>Spondylus</i> ...	.....	.....	.....	.....	giganteus.	sp. calcifer.....	..... princeps. dubius. radula.	..... calcifer.		
<i>Plicatula</i> ...	.....	.....	.....	.....	.....	penicillata ...	penicillata.	limbatus. sp.		
OSTREADÆ: <i>Ostrea</i> ...	.....	.....	..... ? conchaphila..	..... sp. conchaphila...	..... conchaphila ... palmula .....	..... conchaphila ... palmula .....	..... conchaphila ... palmula.	conchaphila. Cumingiana.		
	.....	.....	.....	.....	.....	sp. Columbiensis. Virginica .....	..... ..... .....	..... Virginica. iridescens.	E.	
ANOMIADÆ: <i>Placunanomia</i> A. A. (macroschisma)	patelliformis. A. (macroschisma) .....	.....	..... cepio. alope.	..... macroschisma.	.....	claviculata. pernoides.....	..... foliata	pernoides.		E.
<i>Anomia</i> .....	.....	.....	lampe	lampe .....	.....	foliata	Cumingii.	lampe tenuis. fidenas. sp.	E.	
									adamas.	

Class PTEROPODA.

Unknown.

Class GASTEROPODA.

OPISTHOBRANCHIATA.

Nudibranchiata.

<p>cornutus. discrepans.</p>					<p>Cumingiana.</p>			<p>acutus. concinus. infrequens. Panamensis. stagnalis. Tabogensis. trilineatus. Bridgesii. sp.</p>
						<p>cingulata. olivaceus.</p>		
					<p>rusticans. Oregonensis... sp.</p>			
<p><i>Tornatellina</i> <i>Succinea</i></p>								
<p>AURICULIDÆ : <i>Melampus</i>...</p>								

nux.
verrucosus.
unifasciatus.
rugulosus.
Eschariferus.
Darwini.
Achatinellinus
incrassatus.
ustulatus.
calvus.
Jacobi.
Chemnitzoides
corneus.
sculpturatus.
rugiferus.
nucula.
Gallapaganus.
Manini.

Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(CHITONIDÆ : Chiton)	scabricula.....	..... luridus Columbiensis.	..... E. E.	E.
Mopalia	vespertina.	Simpsonii.	Blainvillei.	Arragonites.	.....	Hindsii.	.....	E.
Acanthochitons Katherina ... A.	subnarmorea. tunicata.	Douglasiaë. Stelleri.....	Stelleri. Wosnesenskii	.....	.....	refusa .....	.....	.....	E.
Cryptochiton. A. Placiphora... Genera undet.	Stelleri..... Wosnesenskii	..... lignosus. dentiens.	Nuttalli. Californicus. acutus. consimilis. Montereyensis Hartwegii. regularis.	ornatus.	.....	setosus.	clathratus. lineatus. Elenensis .....	..... [mis. E. hirundinifor- E.	E.
PATELLIDÆ : Patella	Mexicana..... pediculus discors discors sp. sp. stipulata.	E.
Nacella	Asmi.	instabilis.	depicta. incessa.	sp.	E.

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Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(TROCHIDÆ: <i>Vitrinella</i>)						planospirata. orbis. Panamensis parva perparva exigua		Panamensis. parva. perparva. exigua. concinna. Janus. modesta. regularis. seminuda. tricarinata. valva toides.		
? <i>Liotia</i>						carinata. striulata. C-B-Adamsi. sp. tumens. pyricallosa. lirulata. pallidula. carinata. amplectans. substriatum.				
? <i>Globulus</i> <i>Ethalia</i>										
<i>Teinostoma</i> .								minutum. scaber.		
<i>Adeorbis</i>						scabricosta	(ornata.....)	(Deshayesii. Bernhardi		
NERITIDÆ: <i>Nerita</i>						Bernhardi Californica. cassiculum. picta	(funiculata ...)	Bernhardi		E.
<i>Neritina</i>								picta.		
						latissima. globosa. Listeri.				
						intermedia Guayaquilensis		intermedia. Guayaquilensis Michaudi		E.

Pectinibranchiata.

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Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(CALYPTREIDÆ: <i>Crepidula</i>)	marginalis .....	.....	E.
CAPULIDÆ: <i>Hippomyx</i>	Grayanus.....	Grayanus.....	Grayanus.....	(radiatus).....	Grayanus.	
						serratus.				
						antiquatus		(Panamensis.....		E.
						planatus		planatus.	[Polynesia.]	
						barbatus		barbatus		
						sp.		mitrula.		
VERMETIDÆ: <i>Capulus</i>	margaritarum.				
VERMETIDÆ: <i>Aletes</i>	squamigerus.....	squamigerus.	centiquadrus ..	centiquadrus ..	(Peronii.		
				eburneus.	Hindsii.	contorta.		
<i>Vermetus</i>	contorta .....	.....	contorta.		
<i>Bivonia</i>	albida.	.....	.....
						2 sp.	.....	Panamensis.		
<i>Spiroglyphus</i>	macrophragma	.....	macrophragma		
Petalocenchus	insculptum.	.....	.....
CÆCIDÆ: <i>Cæcum</i>	subspirale.	.....	.....
<i>Elephantulum</i>	abnormale.	.....	.....
						obtusum.	.....	.....
						liratoctinctum.	.....	.....
						heptagonum.	.....	.....
						elongatum.	.....	.....
<i>Anellum</i>	subimpressum.	.....	.....
						clathratum.	.....	.....
						quadratum.	.....	.....
						undatum .....	.....	.....
						firmatum .....	.....	.....
						farcimen.	.....	.....
						glabriforme.	.....	.....
<i>Fertulum</i>	corrugulatum.	.....	.....
						dextroversum.	.....	.....

Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(MELANIADÆ:) <i>Pyrgula</i>				seminalis. nuclea.				quadricostata.		
PALUDINIDÆ: <i>Bithinia</i>						malleata.		Cumingii. giganteus. Bardiana. ??dubiosa.		
AMPULLARIADÆ: <i>Ampulla</i> [ria.						sp.				
CYCLOSTOMIDÆ: <i>Cyclofus</i> .										
TRUNCATELLIDÆ: <i>Trunca-</i> [tella.										
LITORINIDÆ: <i>Litorina</i> A.	Kurila. Sitchana. modesta		modesta. lepida. scutellata.	planaxis. plena.	?fasciata	fasciata coronata. sp.		fasciata.		
	[aspera]			[aspera]		aspera consersa Philippi	aspera consersa	aspera. consersa. ?(parvula. aberrans. atrata. pulchra. varia.	porcata.	E.
<i>Modulus</i>						catenulatus disculus	catenulatus disculus	catenulatus disculus.		
<i>Fossarus</i> ..						sp. tuberosus. angulatus.	(dorsuosus	abjectus. angiosstoma. excavatus. foveatus. megastoma.		
<i>Icaxis</i>						ovoides.				

Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(PYRAMIDELLIDÆ: <i>Odostomia</i>)	vallata. mamillata. tenuis. sp. 3 sp.	.....	.....	.....	.....
(<i>Auriculina</i>)	scalariformis. quinquecincta. lacunata. armata. exarata. ziziphina. ovata. nodosa. rotundata. oblonga. telescopium. Reigeni. effusa. fasciata. ovulum. convexa. Photos. indentata. clausiliformis. communis	.....	.....	.....	.....
<i>Parthenia</i>
<i>Chrysallida</i>
<i>Chemnitzia</i>	tenuicula. torquata.	.....	.....	.....	communis. clathratula. pacuminata. marginata.	.....	.....
	prolongata. muricata. gibbosa. gracillima. undata. flavescens. terrebralis. tenuilirata.	.....	.....	.....	.....

Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(CERITHIOPSIDÆ : <i>Cerithi-</i> [<i>opsis</i> .] SCALARIADÆ : <i>Scalaria</i> A.		Greenlandica.	australis sp.			indistincta. reflexa. suprastrata. rariocostata. 2 sp. hexagona	hexagona mitraformis. Dianæ. aciculina. vulpina.	neglecta. paupercula.		E.
								(3 sp.) hexagona.		
								statuminata. regularis. tiara. subnodosa. Cumingii. Hindsii. obtusata		E.
<i>Cirsotrena</i>						funiculata ..		funiculata.	diadema.	
NATICIDÆ : <i>Natica</i> A.	clausa.			? maroccana var. <i>Californica</i> }		maroccana bifasciata. sp.	(Pritchardi ...)	(Chemnitzii ...)	maroccana ...	E.
							excavata	excavata. Haneti. zonaria. 2 sp. Souleyetiana.		? E.
<i>Lunatia</i> A.	flava.		caurina. impervia (Lewesi algida.	herculea.						E.

VOLUTIDÆ: <i>Voluta</i>	<i>Strigatella</i>	tristis	tristis	nucleola. solitaria. funiculata	E.
	guasapata. gratiosa. muricata[Pol.]	E.
	effusa	tristis	E.
	Cumingii	effusa	E.
OLIVIDÆ: <i>Olivæ</i>	<i>Marginella</i>	Jewettii.	curta. polita. margaritula. minor	minor.	E.
	imbricata. cypræola. sapotilla	E.
	carulescens	E.
	intertincta. Duclosi	[Polynesia].
<i>Olivella</i>	?eburnea. porphyria..... angulata	porphyria. angulata	E.
	Melchersi..... splendidula	Melchersi. splendidula	E.
	venulata	venulata.	E.
	Cumingii	?polpaster .. Julietæ.	E.
<i>Olivella</i>	dama. intorta.	E.
	p. aureocincta.	E.
	anazora	E.
	zonalis	zonalis.	E.
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<i>Olivella</i>	E.
	E.
	E.
	E.
<i>Olivella</i>	E.
	E.
	E.
	E.
<i>Olivella</i>	E.
	E.
	E.

Zoological Divisions.	Asia.	Arctic.	Oregon.	U. California.	L. California.	G. California.	C. America.	Panama.	Galapagos.	S. A.
(OLIVIDÆ: Olivella).....						tergina undatella inconspicua ...	tergina undatella volutella	undatella. inconspicua. volutella. pellucida. semistriata ...		E. E. Kaleontina ...
<i>Aragonia</i>						testacea	testacea scriba. crenata.	testacea.		
<i>Harpa</i>										
PURPURIDÆ: <i>Purpura</i> ...	A. B. Freycinettii. B. (decemcostata)									
	A.	lapillus..... septentrionalis	macrostoma. harpa. emarginata ...			emarginata. triangularis ... triserialis..... patula columnellaris... muricata biserialis	(speciosa. pansa columnellaris... muricata bicostalis ... (melones alveolata.	triangularis muricata (undata melo alveolata.	(Carolensis. patula. columnellaris. E. E. E.	
<i>Cuma</i>						costata. kiosquiformis..	..... tecta.....	kiosquiformis.. tecta.	planospira.	E.
<i>Rhizocheilus</i>					foveolata.	asper. nux .....	.....	nux.		
<i>Vitularia</i> ...					Belcheri.	salebrosa	salebrosa	salebrosa	salebrosa.	
<i>Pseudoliva</i>					Kellettii.					
<i>Monoceros</i>					engonatum. brevidens. lapilloides.					

(lugubris).		[brevidentatum]		tuberculatum. [(cornigerum)]	brevidentatum	{(maculatum } brevidentatum }	E.
<i>Engina</i> .....	.....	.....	.....	.....	.....	grande.	
<i>Nitidella</i> .....	.....	Gouldii.	.....	.....	.....	jugosa. alveolata. heptagonalis. contracta	E.
	.....	.....	.....	.....	.....	carbonaria ... Reeviana	carbonaria. (pulchra.
	.....	.....	.....	.....	.....	pyrostoma ... maura	pyrostoma. maura.
	.....	.....	.....	.....	.....	crocostoma ... zonata.	crocostoma. zonata.
	.....	.....	.....	sp. cribraria .....	.....	cribraria. pulchrior.	
<i>Buccinidae: Columbella</i> .....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	cervinetta. nasuta.	.....	.....	E.
	.....	.....	.....	major	major	major	E.
	.....	.....	.....	strombiformis	strombiformis	strombiformis	E.
	.....	.....	.....	fuscata	fuscata	fuscata	E.
	.....	.....	.....	pulcherrima. ligata.	.....	.....
	.....	.....	.....	castanea. pardalis.	.....	.....
	.....	.....	.....	festiva.	.....	labiosa	E.
	.....	.....	.....	labiosa .....	.....	labiosa	
	.....	.....	.....	Boivinei	Boivinei	Boivinei.	
	.....	.....	.....	.....	.....	harpiformis.	
	.....	.....	.....	.....	.....	procera.	
	.....	.....	.....	.....	.....	livida.	
	.....	.....	.....	.....	.....	hæmastoma ...	hæmastoma.
	.....	.....	.....	.....	.....	varians.	varians.

70. Now let the student of geographical distribution of Mollusca begin by observing the fauna of our own seas, and learn, from the invaluable work of Forbes and Hanley, to discriminate species and eliminate those that are spurious. Let him then, taking Philippi and M'Andrew as his guides, compare them with the shells of the Atlantic and Mediterranean shores. Let him, with Gould and DeKay, note both the similar and dissimilar forms on the shores of the United States. Let him, after studying the very characteristic fauna of the Caribbean Sea, again cross the Atlantic, and observe the reappearance of well-known forms, in spite of the vast extent of ocean. Let him trace the fauna of Senegal with Adanson, of the Guinea coast with Dunker, and of the Cape and Port Natal with Krauss. Here let him enter on the vast Indo-Pacific province; and, having taken in the general conception of the fauna from any collection of East Indian shells, let him examine its special districts, from Akaba, to Easter Island in the latitude of the Gulf of California. Let him learn from Cuming the vast variety of generic and specific forms which culminate in the Philippines. Let him trace some of these westward even to the northern extremity of the Red Sea, where they associate with types from the Mediterranean and even the West Indies; and eastward from group to group of the coral or volcanic islands in the vast expanse of the Pacific. Let him note the reappearance of forms at the Cape and Australia, in spite of the broad waters of the Indian Ocean. Let him learn from Nuttall the species which are common to the Red Sea and the Sandwich Islands; and from Stutchbury those which abound both in New Holland and Tahiti. And, having at every step in his inquiry found somewhat in common with the last; having, when examining the shells of the Marquesas in the center of the Pacific, found several conspicuous and well-known forms of the Asiatic Seas, in spite of (in parts) the profound depth of ocean that lies between; he will naturally expect, as he reaches the American shores, to find also not a little in common with the opposite shores. He crosses the vast unbroken expanse of the West Pacific; one flank of the hemisphere of waters, which of itself almost rivals the Atlantic in extent. He pauses at the solitary Archipelago of the Galapagos, in the very longitude of the Gulf of Mexico, guarding (as it were) the great bay of Central America, and within 600 miles of its shores. Even here his eye rests with pleasure on a few well-known Cones and other forms, which have crossed the fathomless depths and come to claim kindred with their molluscan brotherhood of the New World. But here they stop. They could traverse half a world of waters. The human spirit that gives them understanding and a voice, beholds them on the very threshold of the promised continent, in whose bays and harbours, protected by the chain of everlasting mountains, they shall find the goal of their long pilgrimage. But the Word of the unknown Power has gone forth; and the last narrow channel they attempt to cross in vain.

We speak now of the first general impression, without regard to exceptional cases: and the ascertained facts fully bear us out in saying that there does not exist on the surface of the earth a more separate, independent assemblage of mollusks than is to be found, under three great typical divisions, from Oregon to Chili. Mr. Nuttall, in passing from California to the Sandwich Islands, found only a *Hipponyx* in common. Messrs. Cuming and Hinds, both of whom had well explored the seas of the E. and W. Pacific, and of whom the former made his great collections in the two equatorial boundaries, with no inconsiderable research among the intermediate groups, having compared about 2000 species from the two districts, came to the

conclusion that only one shell is common to east and west, and not even that to the intermediate islands*.

71. And if we are thus struck with the isolation of the W. American fauna in general, so are we with the separation of its component parts. Let us compare (as being the most unmixed sources of information) the central collection of Prof. Adams at Panama, on the one side with the equatorial collections of Messrs. Cuming and Fontaine, and with the Chilian researches of the former and D'Orbigny; and on the other with the Gulf collection of M. Reigen, and those in California by Mr. Nuttall and the U.S. Exploring Expedition. We find that, while so large a number of species are common to Mazatlan, Panama, Guayaquil and the Galapagos, that they may fairly be reckoned as one great province, scarcely any are common to the equatorial districts and Chili, and still fewer to the Gulf and San Francisco; insomuch that on a comparison of known forms between Mr. Nuttall's collection, M. Reigen's, and the W. Indian fauna, it may be safely asserted that there is more in common between the two latter than the two former.

We proceed now to the details and the exceptions; merely premising that the student must bear in mind the very unsatisfactory nature of most of our materials, and must therefore receive what follows simply as the approximation partially attainable in the present state of the science, and not as absolute truth.

72. In the *Boreal Fauna*, we naturally look for different conditions from those which prevail in the continent generally. The near connexion of Asia and America at Behring's Straits and the Aleutian Islands leads us to expect similar forms on the two continents; and as the boreal species are known to be both widely distributed and extremely variable, we shall not be surprised to meet again with a few familiar European types.

The following POLAR species are quoted from the extreme north at Icy Cape:—

Corbula gibbosa.
Tellina alternidentata.

— *inconspicua*.

— *nasuta*.

Astarte crassidens } { = *corrugata*.
— *lactea* } { = *semisulcata*.

Trichotropis borealis.

Natica pallida.

Buccinum angulosum.

— *polare*.

— *tenue*.

Chrysodomus fornicatus.

Trophon lamellosus.

Of these none as yet appear in the Sitcha lists but *Tellina nasuta*, and the European *Trich. borealis*. The latter probably reaches Oregon, while the former travels as far south as San Diego.

73. From the SITCHA district are quoted 102 species (25 bivalves, and 77 univalves); of which 16 are northern forms, not known south of Behring Sea; 18 biv. + 26 un. = 44 are found in Asia, principally in the Ochotsk Sea; 7 biv. + 12 un. = 19 are common to Oregon; about the same number, but not the same shells, are found in Upper California, and a few have a wide range. *Triton scaber* is the only Sitcha Proboscidean which reaches California. The Kamtschatkian *Cryptochiton Stelleri* and *Placunanomia macroschisma* reappear in Upper California, but have not yet been found in intermediate stations. *Mytilus edulis* reaches from Kamtschatka to Upper, and *Tellina nasuta* with *Cardia Nuttalli* and *Californiense* to Lower California; while *Acmæa patina* travels

* Vide Woodward's "Manual of Mollusca," pp. 373 *et seq.*, London, Weale, 1851-56: a work which combines in a small compass, and at a price within the reach of all, a larger amount both of accurate detail and philosophical research than is anywhere else accessible. The chapters on geographical and geological distribution are invaluable.

under a host of names to the peninsula, and even straggles into the Gulf. *Scurria mitra*, *Osilinus ater* and *Omphalius mæstus* reach from Sitcha to Lower California, and *Acmaea persona* sparingly enters the Gulf; while the ubiquitous *Saxicava*, one species probably under a variety of names and forms, appears, like man and dog, to adapt itself to every variety of climate, and to reappear in every well-searched fauna, boasting also of being one of the most ancient types now living on the surface of our globe. The *Litorina aspera* and *Callopona fluctuatum*, quoted on the authority of Barclay, are so essentially tropical, that we may be allowed to suspend our judgment before we receive them into the fauna.

74. The OREGON shells belong, in the main, to the Californian type, but present, thus far, peculiarities which demand a separate study. The total

		Bivalves.	Ordinary Univalves.	Toxifera.	Proboscidi- fera.
number known are	144=	49	72	1	22
Of these have, in addition, been	} 16=	6	9	0	1
found only in Upper California					
„ also in Lower California	12=	5	6	0	1

The following—*Crenella discrepans*, *Trichotropis borealis* and *Bela ? turricula*, are European forms. The following are the principal sea shells as yet peculiar:—

Terebratula pulvinata and *canrena*.
Panopæa generosa.
Solen sicarius.
Venus calcarea and *ampliata*.
Cardium blandum.
Pecten caurinus, *hericeus* and *Townsendi*.
Placunanomia alope and *cepio*.
Chitonidæ dentiens and *liguosus*.
Callochiton interstinctus.
Mopalia vespertina.
Chiton muscosus.

Katherina Douglasiæ.
Puncturella cucullata and *galeata*.
Litorina lepida and *scutellata*.
Lacuna carinata.
Cerithiopsis filosa.
Lunatia caurina, *herculæa*, *algida*.
Purpura ostrina and *lagena*.
Columbella gausapata (the most northerly species of the genus.)
Nassa mendica.
Trophon Orpheus and *corrugatus*.

75. A comparison of the shells of the N. W. and S. W. shores of America offers certain remarkable points of identity. The standard limpet of the northern seas is *Acmaea patina*. On reaching the Gulf, it is replaced by *A. mesoleuca*, which probably extends through the Panamic province. But when we approach Chili, we again find the *A. patina* in D'Orbigny's collections, and it is figured by Mr. Reeve as though brought by Cuming. Indeed if the Chilian and Californian specimens were mixed, it would be impossible to separate them by the shells alone. It is true that Philippi, recognizing some of Eschscholtz's Sitchian species as southern forms, accuses the latter of mixing the labels; but probably they occur in each fauna. The *Scurria mitra* also, though somewhat more local, is a very abundant shell on both coasts. The *Acmaea cassis* of Eschscholtz appears only a northern reproduction of the Patagonian *Patella deaurata*, Gmel. The *Fissurrella violascens*, Esch., is assigned by him to the south, to which in type it belongs; but it has some claims on the northern fauna for admission. The *Bullia ampullacea*, Midd., is essentially a southern type, especially abounding in peninsulas; of its specific relations we are not yet able to judge. The *Natica caurina* of Gould, appears a geographical creation for the southern *N. impervia* of Philippi; while of the Oregonian *Scalaria*, Dr. Gould confesses that he has

seen no marks by which it can be separated from *S. australis*, though he expects that some will be eliminated hereafter.

76. The UPPER CALIFORNIAN district presents a very peculiar assemblage of shells; essentially of a temperate cast, but including a few forms of tropical type. The leading species are as follow, including several which also make their way into Oregon and Lower California:—

Discina Evansii.	Bulla nebulosa.
Pholadidea penita.	Tornatina culcitella and cerealis.
Parapholas Californica.	Lepidochiton Mertensii and scrobiculata.
Petricola Californica.	Mopalia Simpsonii.
Rupellaria lamellifera.	Chitonidae Nuttalli, ornatus, Monte-
Saxidomus Petittii and Nuttalli.	reyensis, Hartwegii.
Platyodon cancellatus.	Nacella depicta and inessa.
Cryptodon Nuttalli.	Acmæa scabra and toreuma.
Sphænia Californica.	Fissurella ornata and volcano.
Thracia curta.	Lucapina crenulata.
Mytilimeria Nuttalli.	Haliotis, 5 sp.
Pandora punctata.	Trochus filiosus.
Machæra Nuttalli.	Omphalius aureotinctus.
Solecuretus subteres and Californicus.	Trochiscus Norrisii.
Sanguinolaria grandis.	Crepidula rugosa.
Tellina Bodegensis, secta and alta.	Aletes squamigerus.
Donax flexuosus and Californicus.	Litorina planaxis.
Mactra Californica and planulata.	Trivia Californica.
Trigona crassatelloides.	Defrancia bella.
Dosinia callosa.	Conus ravus.
Venus Nuttalli.	Odostomia gravida.
Tapes straminea.	Chemnitzia tenuicula and torquata.
Trapezium Californicum.	Neverita Recluziana.
Chama exogyra.	Mitra maura.
Diplodonta orbella.	Marginella Jewetii.
Kellia Laperousii.	Purpura macrostoma and harpa.
Mytilus Californianus and bifurcatus.	Monoceros engonata and lapilloides.
Modiola recta and nitens.	Nitidella Gouldii.
Nucula cœlata.	Columbella carinata and StaBarbarensis.
Leda polita.	Nassa perpingius.
Isognomon costellatus.	Cerastoma Nuttalli.
Pecten latiauratus.	

The total number of mollusks known to inhabit this district, excluding most of those of which the habitat is only loosely stated as "California," &c., is as follows:—Bryozoa, 1; Palliobranchs, 2; Lamelliobranchs, 73; Ordinary Gasteropoda, 100; Toxifera, 2; Proboscidiifera, 24: Total, 202. Of these there have only as yet been found common also to Lower California (San Diego to Cape St. Lucas), Bryozoa, 0; Palliobranchs, 0; Lamelliobranchs, 27; Ordinary Gasteropoda, 23; Toxifera, 0; Proboscidiifera, 6: Total, 56; but as scarcely 140 species are as yet known from that region, it is next to certain that the common species will be hereafter found much more numerous. Of the comparatively small assemblage known from Upper California, containing next to no pelagic forms and only about half-a-dozen minute species, it will be observed how large a proportion are bivalves, and how few proboscideans; also how much larger the proportion of the widely extended species is in the former than in the latter group. A very few, as *Cultellus lucidus* and *Lyonsia Californica*, are perhaps identical with North Atlantic shells; but in general there is a wide disagreement. Here are found the largest species of *Parapholas* and *Trigona*; and the types of *Platyodon*, *Cryptodon*, *Mytilimeria* and

Saxidomus. The tendency of the *Muricidæ* and *Purpuridæ* to assume the acanthoid type, is well known, both in these and the West Southern shores. The *Lithophagus Gruneri* rests on tolerably satisfactory evidence from New Zealand as well as from Monterey. The wide-spread *Strigilla carnaria*, even more like the usual Caribbean type than are the Mazatlan specimens, here appears in tolerable abundance; while even the *Livona pica* is stated to have been found alive. Of course it may retain a lingering existence in the upper seas, as *Lucina tigerrina* in the lower, while on the coast bordering on the Caribbean it has died out; but it is more natural at present to suppose it an error. For the *Litiopa divisu*, an East Indian pelagic shell, said to have been found on "Cape San Francisco," a locality of the same name occurs near the Bay of Guayaquil. The sudden appearance of *Haliotidæ*, of great size and beauty, in the temperate shores of West N. America, is very remarkable. Not a single specimen occurred in the vast Reigen collection, nor have any been taken in Central America, or in South America, the head-quarters of Chitonidæ. On crossing the Pacific Ocean, however, we find that Japan, which represents the same zone on the Asiatic coast, is equally rich in beautiful forms. The following species are quoted from

JAPAN.

Haliotis Japonica, Rve.
 — *gigantea*, Chemn.
 — *discus*, Rve.
 — *Sieboldii*, Rve.
 — *aquatilis*, Rve.

CALIFORNIA.

Haliotis splendens, Rve.
 — *corrugata*, Gray.
 — *Cracherodii*, Leach.
 — *Californiensis*, Swains.
 — *rufescens*, Swains.

Two of the Asiatic species, *H. aquatilis*, Rve., and *H. Kamtschatkana*, Jonas, stretch upwards within the bounds of the Polar fauna in Behring's Sea; while the latter appears to have crossed the waters, and to have found its way sparingly down the American coast.

77. Of the fauna of LOWER CALIFORNIA, meaning the peninsula from San Diego to Cape St. Lucas, one of the most interesting portions in the American coast, but the least thoroughly investigated, very little is known, and that little but inaccurately. The shells of San Diego, as collected by Nuttall, are almost entirely distinct from those of the Gulf. Most of them belong to the Upper Californian type, but several fresh species make their appearance, which are still distinct from the Mazatlan fauna. This ground was well searched by Messrs. Kellett and Wood; and it is probable, though the evidence is very slight, that many of the peculiar shells of their expedition, such as *Hinnites giganteus*, *Pseudoliva Kellettii*, &c., were obtained in this district. The little that is known accurately of the peninsula, shows that the stations on both shores of the Gulf belong essentially to the Panamic type; those within the Gulf being even more tropical than those at the mouth; as evidenced by *Oliva porphyria*, *Cassidula coarctata*, *Oniscia tuberculosa*, *Terebra robusta*, and other Panama species not found in the Reigen collection: while the Bay of Magdalena and other stations in the Pacific are peopled, principally by the Californian colony moving southwards, and stopped at the Cape by the upward equatorial current; partly by Gulf shells making their way round the corner; and partly, it seems, by a special little fauna of its own. It will be an abundant recompense for the labour of this Report, if it should lead any careful naturalist to make a diligent search of the district, both as to its shore shells and its pelagic species; making accurate notes at the time what species are taken alive and what dead; in what circumstances and quantities; and with such precautions as shall effectually guard against all

chances of error. We shall then know, and not satisfactorily till then, where and how the two great faunas of West N. America, both of which go loosely by the name of "Californian," find their separation.

The imperfect data of the Pacific coast of Lower California only furnish us with Palliobranchs, 1; Lamellibranchs, 60; ordinary Gasteropods, 49; Toxifera, 7; Proboscidifera, 20: total 137 species. As the localities are so far from being satisfactorily established, an exact analysis of them will not here be attempted: but the fauna of each spot will be given entire so far as known, both on the Pacific shores and in the Gulf. The species marked * belong to the Californian type; those marked † to the Panamic.

The following list contains the known shells of SAN DIEGO:—

- | | |
|---------------------------|----------------------------|
| Pholadidea ovoidea. | Pecten floridus. |
| * ——— penita. | —— purpuratus. |
| *Parapholas Californica. | †Ostrea conchaphila. |
| Saxicava Pholadis. | † ——— plumula. |
| *Petricola Californica. | Hinnites giganteus. |
| *Saxidomus Nuttalli. | *Helix tudiculata. |
| *Platyodon cancellatus. | * ——— Kellettii. |
| *Sphænia Californica. | Bulimus pallidior. |
| *Lyonsia Californica. | †Melampus olivaceus. |
| Periploma argentaria. | Haminea vesicula. |
| *Solecurtus subteres. | *Bulla nebulosa. |
| * ——— Californianus. | —— virescens. |
| Sanguinolaria Nuttalli. | —— longinqua. |
| Psammobia Pacifica. | Tornatina inculata. |
| *Tellina nasuta. | Mopalia Blainvillei. |
| * ——— secta. | *Acmaea patina. |
| —— pura. | * ——— persona. |
| —— vicina. | * ——— grandis. |
| Cumingia Californica. | * ——— spectrum. |
| *Semele decisa. | * ——— scabra. |
| —— flavescens. | —— fascicularis. |
| * ——— rubrolineata. | *Fissurella volcano. |
| *Donax Californicus. | *Haliotis Californiensis. |
| *Venus Nuttalli. | * ——— Cracherodii. |
| * ——— Californiana. | * ——— splendens. |
| —— excavata. | *Osilinus ater. |
| —— dispar. | *Trochus filiosus. |
| —— fluctifraga. | *Omphalius aureotinctus. |
| *Tapes straminea. | * ——— brunneus. |
| *Trigona crassatelloides. | *Phasianella compta. |
| *Cardium Nuttalli. | †Turbo Fokkesii. |
| * ——— Californiense. | †Petalonchus macrophragma. |
| * ——— substriatum. | *Cerithidea sacrata. |
| † ——— elatum. | —— albonodosa. |
| —— luteolabrum. | —— pullata. |
| Cypricardia Californica. | †Natica uber. |
| *Chama exogyra. | Ranella triquetra. |
| —— pellucida. | —— muriciformis. |
| *Diplodonta orbella. | —— Californica. |
| †Lucina punctata. | †[Oliva splendidula]. |
| —— bella. | Purpura emarginata. |
| —— Californica. | Columbella carinata. |
| —— Nuttalli. | —— Californica. |
| †Lithophagus attenuatus. | †Nassa luteostoma. |
| *Mytilus Californianus. | —— fossata. |
| Modiola capax. | † ——— tegula. |
| Arca pernoides. | Murex Belcheri. |
| *Pecten latiauritus. | |

The following shells are quoted from SAN PEDRO :—

Sanguinolaria Nuttalli.	*Tapes straminea.	*Acmæa scabra.
*Semele rubrotincta.	— gracilis.	*Scurria mitra.
*Tellina secta.	*Diplodonta orbella.	*Trochus mœstus.
Mactra nasuta.	Cardium cruentatum.	†Crepidula incurva.
*Venus Nuttalli.	*Chama exogyra.	†Calyptrea spinosa.
— fructifraga.	*Bulla nebulosa.	†Litorina ? fasciata.
— Californiensis.	†Acmæa mesoleuca.	Oliva bicipitata.

The following shells are quoted from GUAYMAS. They all belong to the Southern fauna, except *Bulla nebulosa* and *Venus straminea*, which last belongs to that of Upper California. It may be a wrong determination for the not dissimilar *Tapes histrionica*.

Periploma planiuscula.	Pectunculus giganteus.	Omphalius rugosus.
†Petricola robusta.	Pecten circularis.	Terebra variegata.
†Venus Columbiensis.	*Bulla nebulosa.	Conus ferrugatus.
— Californiensis.	Lophyrus lævigatus.	†— regularis.
*— straminea.	— albolineatus.	†Natica maroccana.
†Tapes grata.	†Acmæa mesoleuca.	— bifasciata.
Cardita Californica.	†Neritina picta.	Fusus pallidus.
Chama f. Mexicana.	†Nerita Bernhardi.	— lignarius.
Cardium elatum.		

The following shells are quoted from SAN JUAN; many others are probably from the same place, but are assigned by error to the Straits of the same name in Oregon.

†Sanguinolaria purpurea.	†Terebra fulgurata.	†Olivella tergina.
Tellina gemma.	†Conus princeps.	— ? eburnea.
*Donax Californicus.	†Oniscia tuberculosa.	Monoceros tuberculatum.
Bulimus pallidior.	†Cassiss coarctata.	†Purpura muricata.
†Radius variabilis.	Olivella intorta.	†Murex plicatus.

The following are quoted from LA PAZ :—

Thracia plicata.	†Ostrea Cumingiana.
†Mactra elegans.	†Cancellaria obesa.
Venus reticulata.	†— solida.
†Dione Chionæa.	†— cassidiformis.
†Artemis gigantea.	Sigaretus debilis.
Petricola dactylus.	†Strombus gracilior.
†Lucina punctata.	†Oliva porphyria.
Modiola capax.	†— splendidula.
†Isognomon Chemnitzianum.	†Purpura patula.
Lima tetrica.	*— emarginata.
Pecten nodosus.	†— biserialis.
— dentatus.	†— kiosquiformis.
Spondylus, sp.	†Murex bicolor.

78. A mere glance at the general Table, contrasting the species on each side of the double central dividing line, especially leaving out of view the uncertain column of Lower California, will satisfy the inquirer of the marked and rapid separation between the two faunas of California-proper and the Gulf. The actual difference is, however, much greater than the apparent, since the name of a species occurs in a column if only one specimen has been obtained, whether or not it were living there; or if living, whether it were an habitual resident or a straggler. For it will be observed that our present lists are much in the condition of those of British shells, before the labours of the dredging naturalists of our own day; when a W. Indian shell was duly

entered on the fauna, if it could be shown to have been picked up on British sands. There are two main sources of information for the comparison of the faunas:—(1.) The collections of Mr. Nuttall and M. Reigen; and (2.) those of the Mexican War naturalists. Now with every respect for the labours of the latter gentlemen, who doubtless did the very best that it was possible for them to do under their peculiar circumstances, we hesitate before we receive from that source alone results at variance with the former. And for this simple reason; that Mr. Nuttall did not travel further south than San Diego, nor did M. Reigen pass beyond the district of Mazatlan: while the officers were moving from place to place, and liable to the errors that even peaceable naturalists may make under such circumstances. As the results of their collections have been carefully tabulated above, those who place implicit reliance upon them can easily add to the lists accordingly: but we think it a sufficient ground for hesitation, that no less an authority than Dr. Gould had formed the opinion, judging from these collections alone, that Mazatlan belonged to the Californian rather than the Panamic type; the contrary of which is abundantly proved by the Reigen collection. It appears also that Prof. Adams entertained the same doubts, though he does not express them; for while he quotes the war-naturalists for seven of his Panama species as inhabiting Upper California, he says in his introduction that none of the species of the province inhabit San Diego, which is at the borders of Lower California. The following are the species common to Mr. Nuttall's and M. Reigen's collections, the specimens quoted from the latter being all that were found out of several myriads of shells.

Californian Fauna.	Species.	Gulf Fauna.
Not uncommon.....	1. <i>Strigilla carnaria</i>	Not common.
Typical	2. <i>Cumingia Californica</i>	Very rare.
Typical and abundant.	3. <i>Trigonella crassatelloides</i> ...	Two minute dead valves, possibly the fry of this species.
Typical	4. <i>Chama exogyra</i>	One pair and a valve, probably of this species.
One young sp.	5. — (frondosa) <i>Mexicana</i> ...	Typical.
? Rare.....	6. <i>Modiola capax</i>	Very rare.
Not uncommon.....	7. <i>Ostrea conchaphila</i> & <i>plumula</i>	Very common.
Typical	8. <i>Bulla nebulosa</i>	A very few, resembling <i>B. nebulosa</i> , but possibly = <i>B. Adamsi</i> , var.
Typical, very abundant	9. <i>Acmæa patina</i>	2 sp. (? ballast).
Typical, very abundant	10. — <i>persona</i>	1 sp. (? ballast).
Typical, local.....	11. — <i>scabra</i>	1 sp. (? ballast).
Very rare	12. <i>Crucibulum spinosum</i>	Typical, widely diffused.
Dwarf var., common...	13. <i>Crepidula aculeata</i>	Typical, widely diffused.
Extremely rare	14. <i>Hipponyx Grayanus</i>	Extremely rare.
1 sp.	15. <i>Petalonchus macrophragma</i>	Typical, common.
? Var. <i>Californica</i>	16. <i>Natica maroccana</i>	Var. <i>Pritchardi</i> .

In this list nos. 3, 4, 8 & 16 are doubtful. Nos. 9, 10 & 11 appear to be stragglers. Nos. 1, 2, 6, 7 & 13 honestly belong to both faunas, and are forms of wide geographical extent; the few remaining being creatures of sedentary habits, that are easily transported from place to place. Out of the 694 species therefore, sent from Mazatlan, to say nothing of the additional species brought by Lieut. Shipley and others, only 16 are in common with Mr. Nuttall's Californians; and even these, to a very limited extent.

79. The following table will give an abstract of what is now known of the Mexico-Peruvian fauna, grouped in families and in columns according to their 1856.

distribution. A. *Species as yet only known from the Gulf*, including Mazatlan and St. Blas.—B. *Species found in the Gulf and Central America*, from Acapulco to Gulf Dulce.—C. *Gulf and Panama*.—D. *Gulf and S. America*.—E. *Gulf and Galapagos*.—F. TOTAL GULF.—G. *Central America*, peculiar.—H. *Central America and Panama*.—I. *Central America and S. America*.—K. *Panama*, peculiar.—L. *Panama and S. America*.—M. TOTAL PANAMA.—N. TOTAL of N. American tropical fauna.

<i>Families, &c.</i>	A.	B.	C.	D.	E.	F.	G.	H.	I.	K.	L.	M.	N.
BRYOZOA	16	...	...	...	...	16	...	...	...	...	...	...	16
TUNICATA .....	...	...	...	...	...	...	...	...	...	...	...	...	...
PALLIOBRANCHIATA .....	...	...	1	1	...	1	...	...	...	...	1	1	1
Total	16	...	1	1	...	17	...	...	...	...	1	1	17
LAMELLIBRANCHIATA.													
Pholadidæ	1	1	2	1	...	5	1	1	1	3	2	7	11
Gastrochænidæ .....	...	...	2	2	...	2	...	...	...	...	2	2	2
Saxicavidæ .....	...	...	1	1	...	1	...	...	...	...	1	1	1
Petricolidæ	10	...	2	...	...	12	...	...	...	...	2	2	13
Myadæ	4	...	...	...	...	4	...	...	...	...	...	...	4
Corbulidæ	3	5	7	3	...	10	4	6	5	6	3	14	23
Anatinidæ	8	...	1	1	...	10	1	...	1	3	...	4	15
Solenidæ .....	...	...	...	...	...	...	...	...	...	1	...	1	1
Solecurtidæ	2	...	1	...	...	3	1	...	...	...	...	1	4
Tellinidæ	23	4	9	6	...	39	8	5	4	23	11	41	81
Donacidæ	4	5	4	1	...	10	2	4	2	1	2	6	14
Mactridæ	5	2	3	1	...	8	...	2	...	3	1	6	11
Veneridæ	9	13	14	17	...	34	2	8	12	6	10	21	45
Astartidæ	6	...	1	...	...	7	2	2	1	...	3	5	13
Chamidæ	1	2	1	...	...	3	1	2	...	1	1	4	7
Cardiadæ	10	3	4	4	...	15	1	3	4	1	4	7	20
Lucinidæ & Diplodontidæ	15	1	2	2	...	19	3	...	...	1	1	3	23
Kelliadæ	*12	...	1	1	...	13	...	...	...	1	1	2	14
Cycladidæ	4	...	...	...	...	4	1	...	...	2	...	2	7
Unionidæ .....	...	1	...	...	...	1	5	...	...	...	...	...	6
Mytilidæ	4	3	5	2	2	13	...	1	...	6	1	11	19
Arcadæ	9	7	10	11	...	23	2	5	4	4	11	17	32
Nuculidæ .....	...	1	2	2	...	2	1	1	2	4	2	6	8
Aviculidæ	1	2	5	1	...	7	1	2	...	2	...	7	10
Pectinidæ	6	1	...	1	...	7	1	3	3	1	3	6	14
Spondylidæ	1	1	1	...	...	3	3	...	...	2	...	3	8
Ostreadæ	2	3	3	1	...	7	...	2	...	2	...	5	9
Anomiadæ	1	1	2	2	...	4	1	...	1	3	1	5	8
Total	141	56	83	60	...	266	41	47	40	76	62	189	423
PTEROPODA .....	...	...	...	...	...	...	...	...	...	...	...	...	...
GASTEROPODA.													
Opisthobranchiata	6	1	2	...	1	10	...	1	...	2	...	6	15
Pulmonata.													
Geophila	4	2	...	...	...	6	6	2	...	8	...	10	22
Limnophila	4	...	...	...	...	4	...	...	...	11	...	11	15
Thalassophila	1	1	1	2	1	3	...	3	1	1	1	4	6
Total	15	4	3	2	2	23	6	6	1	22	1	31	58

* This figure includes *Montacuta chalconica*, found in the fronds of *Murex nigrinus* (Reigen Col.), since the Table was printed.

<i>Families, &c.</i>	A.	B.	C.	D.	E.	F.	G.	H.	I.	K.	L.	M.	N.
Prosobranchiata.													
HETEROPODA.													
Ianthinidæ	3	...	...	...	...	3	...	...	...	...	...	...	3
LATERIBRANCHIATA.													
Dentaliadæ	3	1	...	...	...	4	...	...	1	...	...	...	5
SCUTIBRANCHIATA.													
Chitonidæ	12	1	...	1	...	13	2	...	3	6	4	10	27
Patellidæ	1	2	1	1	...	4	...	1	...	1	...	2	5
Acmaeidæ	5	2	2	...	1	9	1	1	...	3	...	5	13
Gadiniadæ .....	...	1	...	...	...	1	...	...	...	...	...	...	1
Fissurellidæ	5	1	2	1	2	9	2	3	2	4	2	10	18
Haliotidæ .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Trochidæ	32	2	7	...	2	43	2	2	...	14	1	27	64
Neritidæ	2	2	3	1	...	5	3	4	2	2	2	7	12
Total	63	12	15	4	5	91	10	11	8	30	9	61	148
PECTINIBRANCHIATA.													
Rostrifera.													
Naricidæ	1	...	...	...	...	1	...	...	...	...	...	...	1
Calyptæridæ	4	6	12	11	...	17	2	7	6	5	13	20	28
Capulidæ	2	1	4	1	1	6	...	1	...	1	1	5	7
Vermetidæ	5	1	3	...	...	8	1	1	...	1	...	4	10
Cæcidæ	16	...	3	...	...	19	...	...	...	1	...	4	20
Turritellidæ .....	...	2	2	1	...	2	3	2	1	...	...	2	5
Cerithiadæ	4	5	11	2	3	15	2	5	1	1	3	13	19
Melaniadæ .....	...	...	...	...	...	...	...	...	...	2	...	2	2
Paludinidæ .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Ampullariadæ	1	...	...	...	...	1	...	...	...	1	...	1	2
Cyclostomidæ .....	...	...	...	...	...	...	...	...	...	1	...	1	1
Truncatellidæ .....	...	...	1	...	...	1	...	...	...	1	...	2	2
Litorinidæ	8	3	6	1	...	14	...	3	...	9	1	15	23
Rissoidæ	11	...	...	...	...	11	...	...	...	14	...	14	25
Lacunidæ .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Jeffreysiadæ	4	...	...	...	...	4	...	...	...	...	...	...	4
Planaxidæ	11	...	...	...	...	11	...	...	...	...	1	...	12
Ovulidæ .....	...	...	1	...	...	1	1	1	...	2	1	5	6
Cypæridæ	2	5	7	...	3	10	...	5	3	1	5	10	16
Cancellariadæ	1	5	3	3	...	7	4	2	6	7	8	16	26
Strombidæ .....	...	2	3	2	1	3	...	2	1	...	1	4	4
Total	70	30	56	21	8	131	13	29	18	47	34	118	213
Toxifera.													
Terebridæ	6	5	4	2	...	12	2	5	2	7	1	15	25
Pleurotomidæ	11	4	7	5	...	22	22	8	6	24	12	43	86
Conidæ	5	6	6	1	1	13	7	7	3	...	4	10	29
Total	22	15	17	8	1	47	31	20	11	31	17	68	140
Proboscidifera.													
Solariadæ .....	...	2	2	...	...	3	1	1	...	3	...	5	7
Pyramidellidæ	54	1	6	...	...	61	...	...	...	8	...	14	69
Eulimidæ	6	...	3	1	...	10	2	...	...	...	...	3	12
Cerithiopsidæ	6	...	1	...	...	7	...	...	...	3	...	4	10
Scalariadæ	4	1	4	...	...	8	4	1	...	7	1	12	20
Naticidæ	9	4	2	3	2	13	1	3	3	9	3	13	25
Velutinidæ .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Lamellariadæ	2	...	...	...	...	2	...	...	...	...	...	...	2
Ficulidæ .....	...	1	1	...	...	1	...	1	...	...	...	1	1
Carried forward ...	81	9	19	4	2	105	8	6	3	30	4	52	146

<i>Families, &c.</i>	A.	B.	C.	D.	E.	F.	G.	H.	I.	K.	L.	M.	N.
<i>(Proboscifera, continued)</i>	81	9	19	4	2	105	8	6	3	30	4	52	146
Doliadæ.....	...	...	...	...	...	...	...	1	1	...	1	1	1
Cassidæ.....	...	2	2	...	2	2	...	3	...	...	...	3	3
Tritonidæ.....	3	...	2	...	...	5	5	1	...	9	4	16	27
Turbinellidæ.....	...	1	1	1	...	1	...	1	1	...	1	1	1
Fasciolariadæ.....	2	2	2	1	1	5	2	3	...	6	...	9	15
Mitrinæ.....	...	...	2	2	1	2	5	...	...	2	3	5	11
Volutidæ.....	3	...	1	1	...	5	2	2	1	...	...	3	10
Olividæ.....	5	7	9	1	...	18	3	6	...	1	1	12	24
Purpuridæ.....	4	6	7	3	4	15	...	6	3	4	6	21	29
Buccinidæ.....	17	6	7	3	...	24	9	11	4	14	6	30	59
Pyrulidæ.....	...	1	1	1	...	1	...	1	1	...	1	1	1
Muricidæ.....	28	11	14	7	...	50	7	11	4	16	14	45	90
Total Proboscifera.....	143	45	67	24	10	233	41	52	18	82	41	199	417
Total Rostrifera.....	70	30	56	21	8	131	13	29	18	47	34	118	213
Total Toxifera.....	22	15	17	8	1	47	31	20	11	31	17	68	140
Total Pectinibranchiata.....	235	90	140	53	19	411	85	101	47	160	92	385	770
Total Scutibranchiata, &c.....	63	12	15	4	5	91	10	11	8	30	9	61	148
Total Opisthobranchiata and Pulmonata.	15	4	3	2	2	23	6	6	1	22	1	31	58
Total Gasteropoda.....	313	106	158	59	26	525	101	118	56	212	102	477	976
CEPHALOPODA.....	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Lamellibranchiata.....	141	56	83	60	2	266	41	47	40	76	62	189	423
Total Palliobranchiata & Bryozoa.	16	...	1	1	...	17	...	...	...	...	1	1	17
TOTAL FAUNA, Gulf to Panama	470	162	242	120	28	808	142	165	96	288	165	667	1416

80. Now let it be carefully borne in mind that every column of this *résumé* is, without doubt, very far from the actual truth. Whatever may be learnt from it must be estimated positively, and by no means negatively. *E.g.* notwithstanding the scrutinizing researches of Cuming, C. B. Adams, Hinds, Bridges and others in the Bay of Panama, and our almost complete ignorance of all parts of the Gulf except its entrance, 808 species are quoted from the latter and only 697 species from the former, giving a balance of 111 species in favour of the northern station. Now when it is borne in mind that Panama is in the central tropical region, that it receives both the North American species as they travel southwards, and the South American as they move upwards, besides (in all probability) a little nest of bay shells peculiar to its own quiet haunts; while the Gulf fauna receives scarcely any importations from the north, and only those southern forms of life which are capable of subsisting at the very borders or beyond the tropics; it must be evident that much more has to be done before even the central portion has been brought up to its proper standing. Then let it be remembered how many species must be yet unknown in the Gulf district. Large as is our acquaintance with the minute species, as the whole of it has been obtained by ransacking the worm-eaten passages of a few *Chamæ* and *Spondyli*, and examining the dirt on the backs of other shells, what may be expected when the shores and sea-bed have been subjected to the minute examination of a Barlee, an Alder, or a Bean! In the British fauna, 170 out of 511 species are minute. It might have been thought that degeneration of size was a condition of high latitudes; but wherever attention has been paid, the tropical seas are found

as rich in the minuter forms of life as are those that wash colder shores, or even more so. Till the time of D'Orbigny, no one in the tropics seemed to deign to bend his attention to what the amateur collector did not value; but Prof. Adams has already described many small species from Jamaica, and 80 from Panama, the latter simply by the examination of dead drift. In these days of microscopic observation, most interesting results may be anticipated if only dredgers will bring back labelled parcels of fine siftings from deep waters; and ordinary collectors, sieved sand or mud from the shores. If shells were packed in the sieved sand of the place; if they were always sent home in the rough; if those who decorticate their backs with acid, thus destroying the minute microscopic sculpture which is often the best guide for the discrimination of species, would only first brush them without acid, and send the bottoms of the wash bowl to some microscopical malacologist, taking care to wash only the shells from one spot at a time, and not to mix the dirt; we should soon acquire a knowledge of molluscan distribution which would advance the science by rapid strides. Here do not apply many of the sources of error common to larger shells. Ballast can scarcely mix its anomalous transportations with the *Cæca*, *Vitrinella* and *Chemnitzia* in the interior of an oyster; and the facts of distribution are as accurately seen in these minuter forms as in the history of Cones and Olives. The remark made by one of our very foremost naturalists, when it was first proposed to investigate the Mazatlan shells, was that it was not likely that there should be anything new among them; as the large shells would be all the same as Mr. Cuming's, and the small ones as those of Prof. Adams. And yet, comparing the 314 small species from Mazatlan with the 80 described from Panama, only 28 appear identical. The *Cæcum firmatum*, which is the abundant Panama form, is extremely rare at Mazatlan, where it is replaced by the beautiful and still more abundant *C. undatum*, of which only one minute specimen was perhaps found at Panama. Of the principal Panamic *Vitrinella*, only one individual was found at Mazatlan; where it is replaced by the shell first termed *V. clathrata*, which turns out to be the same of which an aberrant variety was imperfectly named and described from Panama as *V. parva*. And so in other instances, as in the larger shells; *Chemnitzia* being always rare in individuals, fruitful in species, with many of a wide range; *Odostomia* not yet found at Panama; *Chrysallida communis*, a coast shell, and very abundant in both districts, while the other species from deeper water are rare and local; *Bullidæ* and small *Marginellæ*, diffused; *Rissoidæ*, local; and so on in ways on which it would be pleasant but not safe yet to generalize. As the same large *Spondylus* which furnished the Mazatlan minutæ is also found in Panama Bay, where it is dived-for by the natives to burn for lime, with all its *Parapholades*, *Gastrochaenæ*, *Lithophagi* and other rich treasures, travellers in that region would do service to science by bringing home a few valves, that it may be found how far the small nestlers correspond, as the boring bivalves are known to do.

But even with regard to the large shells, the distribution of many species is anything but satisfactorily made-out. The fauna of the Central American seas has never been properly published. A variety of new species are described from Messrs. Cuming's and Hinds' collections, but of the old shells found in the same stations we are left in ignorance. The practice of describing only new species from voyages, instead of giving complete lists of those found, very unnecessarily retards our geographical knowledge. The quotations from Acapulco are like those from Dorsetshire or Guernsey in the old British writers. What we yet know makes it far from improbable that while one great type of shells extends at least from Guaymas to the Bay of Guaya-

quill, each portion (the upper Gulf, the Gulf mouth, S. W. Mexico, Central America proper, the Bay of Panama, the N. W. shores of South America, and the Galapagos,) has its peculiar species, or at least those which culminate in that locality. A large number, especially those which are also common to the Galapagos, are found on the whole length of coast, wherever there is a suitable station; while others, perhaps nearly related species, are very local. Thus the beautiful *Venus gnidia* is found wherever there is a muddy bottom to protect its delicate frills, (*Hinds*); while the *V. amathusia*, so near that by Gray and even Deshayes it is regarded as identical, has only yet been found in a typical state at Mazatlan, straggling and of modified form below. The *Dione lupinaria* is in extreme profusion at Mazatlan, and also found far down the coast of South America; but the *D. brevispinosa*, which resembles it with blunted spines, has not yet come to light except from the Gulf. But we must check these comparisons, so interesting to those who have made them a matter of study; and which, if developed, even according to our present knowledge, would fill a volume. Nor would a history of even the Atlantic waters, furnish materials for one more interesting and instructive.

81. One fact however is deserving of special notice. On comparing the shells of the Gulf and South America, we obtain the following results:— Out of 143 Gulf Bivalves, 50 are found in South America, or 1 out of 2·86. Out of 490 Gulf Univalves, only 89 have been found in South America, or 1 out of 5·5; while of the 151 Gulf Proboscideans, only 14 are yet known from South America, or 1 out of 10·8. This may be accounted for partly by the fact that the bivalves cast their spawn loose into the sea, while the univalves, which have larger locomotive powers, generally affix their eggs to shells and stones. (*Gray*.) Accordingly, the Lamellibranchiate fry are borne on in the direction of the current, and are found far beyond what may fairly be considered the limits of the species. This further accounts for the absence of some South American bivalves from Panama which are however found at Mazatlan; the fry, with the current, not sweeping into the bay, but landing on the Mexican coast. It is confirmed by finding the young of many South American species in the sand of Mazatlan, which are not known there in the adult state. Only two bivalves are quoted from Mazatlan and the Galapagos (one of these, *Modiola capax*, a Gulf and Californian species, having probably been added in error from Kellett's voyage); that group being out of the current which we may suppose to convey species from Guayaquil to the northern shores.

How far the Gulf species, or those of Panama, extend on the South American coast, we are not yet able to state with any confidence. Most of Mr. Cuming's recorded South American species are from Ecuador and Columbia; and D'Orbigny's collections are too scanty, especially in pelagic species, for much comparison. It seems probable that but few reach Callao, and extremely few the coasts of Chili. A few indeed are quoted as far south as the Island of Chiloe, but (except in the widely distributed forms, such as Calyptræidæ) they need confirmation; as do also the appearance of *Crepidula nivea* (*Lessonii*) and *Lyonsia picta*, both southern forms, at Vancouver's Island.

82. A comparison with the shells of the Galapagos Islands offers points of peculiar interest. They are known to us by the researches of Messrs. Cuming and Darwin, the latter of whom has given a most graphic picture of their peculiarities in his 'Journal of Researches,' pp. 145, 162. Collections have also been made there by Messrs. Kellett and Wood; but for reasons before stated, less dependence should be placed on them. Unfortunately, though

previous *results* have been tabulated, the materials have not been made public. Mr. Cuming prepared a list of 90 sea shells for Mr. Darwin's use, but it has been mislaid; nor can Mr. Darwin furnish any additional information, having unfortunately distributed his valuable collections before they were geographically tabulated. The following list has been constructed from one most kindly drawn out for this Report by Mr. Cuming, with as much completeness as his extremely limited time allowed; with the addition of species tabulated in the Monographs, and a few from the Pandora Voyage. It is probable that some species have been overlooked from "Hood's Island," which appears both in the Galapagos group and in the central Pacific: both of them are quoted in the Monographs as "Lord Hood's Island," and they are very rarely distinguished from each other.

List of Galapagos Shells.

In this table, stations in America are marked in columns to the left; *M.* Mazatlan and *G.* the Gulf; *C. A.* Central America; *P.* Panama; and *S. A.* South America; while Pacific stations are recorded to the right.

American Localities.				No.	Species.	Station.	Pacific Localities.
				1	<i>Gastrochæna rugulosa</i> , Sow.		
				2	— <i>brevis</i> , Sow.		
				3	— <i>hyalina</i> , Sow.		
				4	<i>Petricola amygdalina</i> , Sow.	In <i>Aviculæ</i> , 3-7 fm.	Society Islands.
				5	<i>Semele rupium</i> , Sow.	reefs & rocks.	
				6	— <i>punctata</i> , Sow.		
				7	<i>Cardita varia</i> , Brod.	fine sand, 6 fm.	
				8	— <i>incrassata</i> .		
				9	<i>Chama imbricata</i> , Brod.	<i>Aviculæ</i> , l. w.-7.	Pearl Island.
				10	— <i>Janus</i> , Rœ.*	on <i>Aviculæ</i> .	
(M.)	.....			10b	<i>Modiola capax</i> , Conr. [?].		
M.	.....			11	<i>Crenella coarctata</i> , Dkr.		
				12	<i>Byssarca truncata</i> , Sow.	stones & <i>Aviculæ</i> .	Society Islands.
		S. A.		13	<i>Pecten magnificus</i> , Sow.	coral sand, 6-17 fm.	
		P.		14	<i>Lima arcuata</i> *.		
				15	<i>Anomia adamas</i> , Gray	on <i>Aviculæ</i> .	
M.	.....			16	<i>Bulla Quoyi</i> , Gray.		
				17	— <i>rufolabris</i> , A. Ad.		
				a	<i>Bulimus nux</i> , Brod.	on bushes.	
				b	— <i>verrucosus</i> , Pfr.		
				c	— <i>unifasciatus</i> , Sow.	under lava.	
				d	— <i>rugulosus</i> , Sow.		
				e	— <i>Eschariferus</i> , Sow.		
				f	— <i>Darwinii</i> , Pfr.		
				g	— <i>Achatinellinus</i> , Forbes.		
				h	— <i>incrassatus</i> , Pfr.		
				i	— <i>ustulatus</i> , Sow.	on lava.	
				k	— <i>calvus</i> , Sow.	dry grass.	
				l	— <i>Jacobi</i> , Sow.	under scoræ.	
				m	— <i>Chemnitzoides</i> , Forbes.		
				n	— <i>corneus</i> , Sow.		
				o	— <i>sculpturatus</i> , Pfr.		
				p	— <i>rugiferus</i> , Sow.	under scoræ.	
				q	— <i>nucula</i> , Pfr.		
				r	— <i>Galapaganus</i> , Pfr.		
				s	— <i>Manini</i> , Pfr.		
				t	<i>Helix</i> , sp.		
?M.	C. A.	P.	S. A.	18	<i>Siphonaria gigas</i> , Sow.		Sandw.I. (<i>Darwin</i>).
				19	— <i>scutellum</i> .		

* *Chama spinosa* (M., C. A.) and *Lima Pacifica* (C. A., P., S. A.), are also quoted from "Lord Hood's Island," and are probably Galapagian species.

American Localities.				No.	Species.	Station.	Pacific Localities.
M.	C. A.	P.	S. A.	20	<i>Lophyrus Goodallii, Brod.</i>	under stones, l. w.	
				21	— <i>sulcatus, Wood</i>	under stones, l. w.	
				22	? <i>Chiton hirundiniformis, Sow.</i> ...	under stones, l. w.	
				23	<i>Acmaea striata, Rve.</i>		
M.	C. A.	P.	S. A.	24	<i>Fissurella mutabilis, Sow.</i>		
				25	— <i>obscura, Sow.</i>	under stones, shore.	
				26	— <i>rugosa, Sow.</i>	under stones, l. w.	
				27	— <i>macrotrema, Sow.</i>	under stones, shore.	
M.	C. A.	P.	S. A.	28	— <i>nigropunctata, Sow.</i>	stones & rks. $\frac{1}{2}$ -t. —	
				29	<i>Glyphis inaequalis (+pica), Sow.</i>	u. s., shore — 8 fm.	
				30	<i>Turbo squamigera, Rve.</i>	7 fm.	
				31	<i>Nerita sp., Kellett & Wood.</i>		
M.	C. A.	P.	S. A.	32	<i>Calyptrea varia, Brod.</i>		Society Islands.
				33	<i>Hipponyx Grayanus, Mke.</i>	on stones, l. w.	
				34	<i>Cerithium stercus-muscarum</i> ..	sand pools, $\frac{1}{2}$ -t.	
				35	— <i>maculosum, Kien.</i>	under stones, $\frac{1}{2}$ -t.	
M.	C. A.	P.	S. A.	36	— <i>interruptum, Mke.</i>	under stones, $\frac{1}{2}$ -t.	
				37	<i>Litorina porcata, Phil.</i>	exposed rocks.	
				v	<i>Paludina, sp.</i>		
				38	<i>Planaxis planicostata, Sow.</i>	u. s., $\frac{1}{2}$ -t. — h. w.	Tahiti & V. Diemen's Land (Darwin).
M.	C. A.	P.	S. A.	39	<i>Luponia nigropunctata, Gray.</i> ...	under stones.	
				40	<i>Trivia pulla, Gask.</i>		
				41	— <i>Pacifica, Gray</i>	under stones.	
				42	— (<i>sanguinolenta</i> , var.) <i>fusca, Gray.</i>		
M.	C. A.	P.	S. A.	43	— <i>suffusa, Gray.</i>		
				44	— <i>rubescens, Gray.</i>	under stones.	
				45	— <i>Maugeriae, Gray</i>	under stones.	
				46	<i>Cancellaria chrysostoma, Sow.</i> ..	sand, 8–10 fm.	
M.	C. A.	P.	S. A.	47	— <i>haemastoma, Sow.</i>	sand, 10–16 fm.	
				48	<i>Strombus granulatus, Swains.</i> ...	sandy mud, 6–8 fm.	
				49	<i>Terebra ornata, Gray.</i>	coral sand, 5–7 fm.	
				50	<i>Myurella frigata, Hinds.</i>		
G.	C. A.	P.	S. A.	51	<i>Drillia excentrica, Sow.</i>	coral sand, 6 fm.	
				52	— <i>bicolor, Sow.</i>	sand, 8 fm.	
				53	— <i>rugifera, Sow.</i>	coral sand, 6 fm.	
				54	— <i>albicostata, Sow.</i>	coral sand, 6 fm.	
M.	C. A.	P.	S. A.	55	— <i>splendidula, Sow.</i>	coral sand, 6 fm.	
				56	<i>Conus nux, Brod.</i>	? shore, l. w.	
				57	— <i>brunneus, Wood.</i>	clefts of rocks, l. w.	
				58	— <i>tiaratus = minimus, Linn.</i>	sand pools, l. w.	
M.	C. A.	P.	S. A.	59	— <i>varius = interruptus, Wood</i>	clefts of rocks, l. w.	East Indies. Philippines.
				60	— <i>diadema, Sow.</i>	clefts of rocks, l. w.	
				61	— <i>Luzonicus</i> , var. <i>Sow.</i>	clefts of rocks, l. w.	
				62	<i>Stylifer astericola, Brod.</i>	in <i>Asterias solaris</i> .	
M.	C. A.	P.	S. A.	63	<i>Cirsotrema diadema*, Sow.</i>		"All over the warm climate," Cuming.
				64	<i>Natica maroccana, Chemn.</i>		
				65	<i>Lunatia Galapagosa (= otis, Zool. Beech. Voy.).</i>	coral sand.	
				66	<i>Oniscia tuberculosa, Sow.</i>	clefts of rocks, l. w.	
M.	C. A.	P.	S. A.	67	— <i>xanthostoma, A. Ad.</i>		
				68	<i>Cassis tenuis, Wood</i>	sandy mud, 6 fm.	
				69	— <i>coarctata, Sow.</i>	crevices of rocks.	
				70	<i>Triton reticulatus, Dilhw. = turriculatus, Desh.</i>	6 fm.	
G.	C. A.	P.	S. A.	71	— <i>Sowerbyi = lineatus, Brod.</i>	sandy mud, 6 fm.	Quoted from Mediterranean.
				72	— <i>pictus, Rve.</i>	under stones, l. w.	
				73	— <i>clandestinus, Chemn.</i>		

* Closely resembles *C. funiculata* from Mazatlan and Panama; at first thought identical by Mr. Cuming; differing simply in the size and obtuseness of the apical portion.

American Localities.				No.	Species.	Station.	Pacific Localities.
G.	C. A.	P.	74	<i>Lathyrus ceratus</i> , Wood	u. s. & rocks, l. w.	Marquesas.
				75	— <i>tuberculatus</i> , Brod.	under stones.	
				76	— <i>varicosus</i> , Rve.	crevices of rocks.	
				77	<i>Mitra muricata</i> , Swains.	sandy mud, 6 fm.	
				78	— <i>gratiosa</i> , Rve.	coral sand, 7 fm.	
M.	.....	P.	S. A.	79	— <i>gausapata</i> , Rve.	10 fm.
				80	<i>Strigatella tristis</i> , Swains.	6-10 fms., sandy mud : also u. s. l. w.	
				81	— <i>effusa</i> , Swains.	sandy mud, 12 fm.	
				82	<i>Olivella Kaleontina</i> , Ducl.		
				83	<i>Purpura patula</i> , Lam.	shore.	
M.	C. A.	84	— <i>columellaris</i> , Lam.	exposed rocks, l. w.	
M.	C. A.	.....	.....	85	— <i>triangularis</i> (= <i>Carolensis</i> , Rve.), Blainv.	under stones, l. w.
M.	C. A.	P.	.....	86	— <i>planospira</i> , Lam.	exposed rocks.
				87	<i>Vitularia salebrosa</i> , King.		
				88	<i>Monoceros grandis</i> , Gray	crev. rocks, l. w.	
				89	<i>Engina carbonaria</i> , Rve.		
				90	— <i>Reeviana</i> = <i>pulchrum</i> , Rve.	under stones, l. w.	
				91	— <i>pyrostoma</i> , Sow.	under stones.	
				92	— <i>maura</i> , Sow.	under stones.	
				93	— <i>crocostoma</i> , Rve.		
				94	— <i>zonata</i> , Rve.	under stones, l. w.	
				95	<i>Columbella hæmastoma</i> , Sow...	under stones.	
				96	— <i>varians</i> , Sow.		
				97	— <i>unicolor</i> , Sow.		
				98	? <i>Buccinum biliratum</i> , Rve.		
				99	— <i>pulchrum</i> , Rve. [? = <i>Engina Reeviana</i> .]		
? G.	C. A.	P.	100	<i>Nassa nodifera</i> , Pow.	coral sand, 6-10 fm.	
				101	— <i>angulifera</i> , A. Ad.		
				102	— <i>nodocincta</i> , A. Ad.		
				103	<i>Fusus Dupetithouarsi</i> , Kien.		
				104	<i>Anachis atramentaria</i> , Sow.	under stones, l. w.	
				105	— <i>nigricans</i> , Sow.	u. s., $\frac{1}{2}$ -t. — l. w.	
				106	— <i>rugulosa</i> , Sow.		
				107	<i>Strombina bicanalifera</i> , Sow.	sandy mud, 10 fms.	
				108	— <i>lanceolata</i> , Sow.	coral sand, 6-8 fm.	
				109	<i>Pisania cinis</i> , Rve.	under stones.	
25	22	38	11	110	<i>Murex pumilus</i> , Brod.	under stones.	11 species.
				111	— <i>nucleus</i> , Brod.	coral sand, 8 fms.	

This list (which is believed to be very accurate in all respects except *Modiola capax*, which is not included in the analysis) contains 20 land and freshwater shells, all of which are believed to be peculiar to the islands, except a *Helix* found at Tahiti, and a small *Paludina*, common to Tahiti, and Van Diemen's Land (*Darwin*). Of the 90 marine shells analysed by Darwin, 47 were not known elsewhere; 25 inhabited the West coast of America, 8 being distinguishable as varieties; the remaining 18 having been found by Mr. Cuming in the Low Archipelago, and some of them also at the Philippines. Prof. Forbes, speaking of the Galapagos in the 'Mem. Geol. Soc. Gr. Br.' vol. i. p. 402, note, says, "We have distinct systems of creatures related to those of the nearest land by representation or affinity, and not by identity." The latter word does not hold good of the sea shells; for there are already known 111 species at the Galapagos, of which 55, or nearly one half, are American shells; of these 25 inhabit the Gulf; 22 have already been taken in Central America; 38 are found at Panama; but only 11 from the parallel latitudes in South America. Only 4 bivalves are

quoted from the continent; two [?] from the Gulf; one from Panama; the other (a distinct variety), from deep water, from Isle Plata. On glancing over the genera with their stations, it will be found that the coast shells common to the two are more numerous than those from deep water; and that the general aspect of the collection is essentially American*. The only genus not yet found on the coast is *Stylifer*, which may indeed afterwards receive species now placed in kindred genera, or be discovered on due search of Echinoderms.

83. Scarcely any generic forms are peculiar to the West Coast Fauna; except indeed *Platyodon*, *Cryptodon* and *Mytilimeria*, from California; *Leiosolenus*, from the Gulf; *Callopoma* and *Teinostoma*, from the Central Province, and *Concholepas* from Peru. But many attain here their greatest development; especially *Calyptraeidae*, *Fissurellidae*, *Acmaea*, *Uvanilla*, *Pomaulax*, *Cæcum*, *Chrysallida*, *Monoceros*, *Leucozonia*, *Cancellaria*, *Columbellidae*, *Periploma*, *Parapholas*, *Saxidomus*, *Trigona*, &c. The familiar genera of the East are often entirely absent; especially the shell-bearing Cephalopods, *Stomatellidae*, *Dolium*, *Melo*, *Eburna*, *Ancillaria*, *Rostellaria*, *Pteroscera*, *Phorus*, *Placuna*, *Malleus*, *Tridacnidae*, *Glauconome*, *Meroë*, *Anatina*, *Aspergillum*, &c. Others, abundant in the Indo-Pacific province, are here barely represented by a few species, or by minute or aberrant forms. Such are *Marginella*, *Cithara*, *Liotia*, *Rimula*, *Cypricardia*, *Clementia*, *Circe*, *Mesodesma*, *Crassatella*, *Pythina* and *Scintilla*; and the tribes of *Cassidae*, *Harpidae* and *Volutidae*. The genera *Conus*, *Oliva*, *Cypræa*, *Terebra*, &c., the staple commodities of the East, are here but poorly represented; no large Cowry living on the coast except *Cypræa exanthema*, and not a single species having been yet found in South America below the Bay of Guayaquil. (*Hinds*.) The almost entire absence of coral, so common in the West Indies and Polynesia, is to be remembered in connexion with the paucity of those tribes that usually feed on its banks.

84. The point, however, which may prove most interesting to the geologist and the geographical student, is whether there be any species common to the Pacific and the Atlantic shores of tropical America; and if so, what are they? It is easy for man to cross the narrow isthmus; have any Mollusks done the same? The determination of this question is a matter of great difficulty; for while ordinary naturalists treat shells as of the same species, if there be no greater variation between them than is known to be allowable between individuals under the same name, it is the present custom with geographical conchologists to treat all similar shells as "analogues" or "representative species," if they occur in unexpected places. In arranging the materials of this Report, those species have been treated as absolutely identical, where no difference obtained between the shells of different seas greater than was observed between individuals in one sea. Thus when the supposed peculiarities of the Pacific *Purpura pansa*, Gld., and *Trochus picoides*, Gld. are found in West Indian specimens, it is regarded as a mere deference to theory to keep them distinct. In other cases, where the shells of the two coasts have a marked difference of aspect, though not greater than may obtain in the same species, if a separation has been made, it is temporarily allowed, though it is more than probable that they will hereafter prove identical. In other cases, the differences, though slight, appear permanent and specific; and in a fourth group they are simply "interesting analogues," but would at once be pronounced distinct, although from the same shore.

* Dr. Gray states [Dr. Richardson's Rep. Ichth. Chin. and Jap. 1846, p. 191, note] that the reptiles which inhabit the Galapagos also belong to American groups.

Now even Prof. Adams allowed that one shell was common, viz. *Crepidula unguiformis**; and Dr. Gould himself inserts *Venus circinata* and *Crepidula aculeata* in his Mexican War Lists. We therefore naturally argue, if one may be common, why not others also? Because we cannot see how they should find their way to other seas, is only an argument drawn from our ignorance. Prof. Forbes, on glancing over the list of the Reigen Collection, allowed that there might be species in common; and in the 'Quarterly Journal' of the Geological Society will be found a paper by Mr. Henniker, in which the author gives geological reasons for the probability of the intercommunication. As the level of the Atlantic is higher than the Pacific, any such communication must have poured the treasures of the Atlantic into the Pacific, and scarcely allowed of an exchange in the other direction. Such is found to be the case; no species fairly belonging to the exclusive Pacific fauna being found in the West Indies. Is it possible that some such intercommunication may have been correlative with the glacial conditions of the European seas? Some of the supposed Caribbean shells in the Pacific appear to have migrated northwards; the *Cypræa exanthema* being poor and small at Panama, where it is called *C. cervinetta*, but large, fine and tolerably abundant at Mazatlan; the *Strigilla carnaria* also, not even noticed as an analogue by Prof. Adams, appears blanched but not uncommon at Mazatlan, and having crossed the "Cape Cod†" of the western shores, assumes its normal condition on the Californian coast. The ubiquitous *Purpura patula*, unknown at Panama, is extremely fine at the Gulf. Other species, however, seem to be dying out; as *Lucina tigerrina* and *Maetra fragilis*.

A. Species regarded as identical between the Pacific and Atlantic.

Pacific.	West Indies.	Pacific.	West Indies.
1. <i>Gastrochaena truncata</i> ... sp.—BristolMus.		20. <i>Orthalicus zebra</i> undata.	
2. — <i>ovata</i> sp.—BristolMus.		21. <i>Hipponyx antiquatus</i> nitridula.	
3. <i>Petricola cognata</i> pholadiformis.		22. — <i>Panamensis</i> subrufa.	
4. <i>Tellina simulans</i> punicea.		23. <i>Crepidula hystrix</i> } aculeata.	
5. — <i>rufescens</i> operculata.		— <i>echinus</i> }	
6. — <i>vicina</i> bimaculata.		24. — <i>unguiformis</i> Goreensis.	
7. <i>Strigilla fucata</i> carnaria.		25. <i>Crucibulum Cumingii</i> ... sp.	
8. — <i>pisiformis</i> , teste Phil. pisiformis.		26. <i>Ovulum gibbosum</i> , teste Cuming. gibbosum.	
9. <i>Maetra fragilis</i> fragilis.			
10. <i>Dione circinata</i> (? + al- circinata. ternata.		27. <i>Cypræa cervinetta</i> exanthema.	
11. <i>Lucina tigerrina</i> tigerrina.		28. <i>Torinia variegata</i> variegata.	
12. <i>Diplodonta semiaspera</i> ... semiaspera, teste Phil.		29. <i>Leiostraca ?distorta</i> ? distorta.	
13. <i>Modiola Braziliensis</i> Braziliensis.		30. <i>Olivella zonalis</i> sp.	
14. <i>Lithophagus aristatus</i> ... caudigerus.		31. <i>Marginella cærulea</i> prunum.	
15. — <i>cinnamomeus</i> cinnamomeus.		[not sapotilla].	
16. <i>Arca labiata</i> labiata.		32. <i>Nitidella guttata</i> cribraria.	
17. <i>Isognomon flexuosus</i> ... Chemnitzianum.		33. <i>Purpura pansa</i> patula.	
18. <i>Ostrea Virginica</i> Virginica.		34. <i>Anachis pygmæa</i> costulata.	
19. <i>Placunanomia foliacea</i> ... foliacea.		35. <i>Pisania ringens</i> sp.[Pernambuco, Br. Mus. Per-haps error.].	

It will be seen that more than half the marine shells are bivalves.

* It is generally said that this shell is only a variety of local types. Each local white shell may take the form *unguiformis*; but there remains a distinct type, known by the form of the vertical whorls, which appears to be ubiquitous. It is not always recurved, and in its natural state appears to be the *Patella Goreensis* of Gmel.—*Vide Plate*.

† This Cape separates the two faunas in Massachusetts: *Cochlodoma*, *Montacuta*, *Cumingia*, *Corbula*, *Tornatella*, *Vermetus*, *Columbella*, *Cerithium*, *Pyrula*, *Ranella*, do not pass northwards; nor *Panopæa*, *Glycimeris*, *Terebratula*, *Puncturella*, *Trichotropis*, *Aporrhais*, nor *Admete* southwards. Of 197 marine species, 83 do not pass to the south, and 50 are not found on the north: 70 are found in Europe. (*Gould, Rep. Inv. Mass.*)

B. *Species which may prove to be identical.*

<i>Pacific.</i>	<i>West Indies.</i>	<i>Pacific.</i>	<i>West Indies.</i>
1. Petricola robusta.....	Choristodon typicum.	18. Hipponyx Grayanus	? Grayanus.
2. Solecurtus affinis	Caribbaeus.	19. Turritella tigrina	imbricata.
3. Corbula bicarinata.....	Cubaniana.	20. Cerithium ? uncinatum ...	uncinatum.
4. Tellina cognata	similis.	21. Modulus catenulatus.....	Carchedonicus.
5. Donax rostratus.....	rugosa, <i>Cuttingin</i> Bristol Mus.	22. — disculus.....	— (pars) <i>D' Orb.</i>
6. Venus ? crenifera	crenifera.	23. Trivia suffusa	? suffusa.
7. — neglecta.....	cancellata.	24. — ? pediculus	pediculus.
8. Trigona radiata	mactroides.	[? imported].	
9. Gouldia Pacifica.....	Crassatella Gua- daloupensis.	25. Erato ? Maugeræ	Maugeræ.
10. Chama frondosa (var. sp. Mexicana).	sp.	26. Lamellaria, sp.	sp.
11. Felania serricata.....	LucinaCandeana.	27. Marginella minor	minima.
12. Byssosarca mutabilis	Americana.	28. — margaritula	ovuliformis.
13. — gradata	? Domingensis.	29. Oliva inconspicua	? oryza.
14. — fusca	? fusca.	30. — Melchersi	sp.
15. Ianthina decollata	prolongata.	31. — araneosa	reticulata.
16. Crucibulum umbrella ...	extinctorium.	32. Olivella p. aureotincta ...	petiolita.
17. Crepidula onyx	sp.	33. Purpura biserialis	Floridana.
		[= <i>P. undata</i> , C. B.Ad.] [not <i>P. undata</i> , Lam.].	
		34. Pisania gemmata	tincta, <i>Conr.</i>

The Gasteropods have now gained a large majority.

C. *Species really separated, but by slight differences.*

<i>Pacific.</i>	<i>West Indies.</i>	<i>Pacific.</i>	<i>West Indies.</i>
1. Lyonsia picta.....	plicata.	22. Neritina picta.....	virginea.
2. Capsa lævigata	Braziliensis.	23. Crepidula excavata	porcellana.
3. Mactra elegans	canaliculata.	24. Hipponyx serratus.....	sp.
4. Tapes histronica	granulata.	25. Turritella goniostoma ...	meta.
5. Dione Chionæa, var.	maculata.	26. Cerithidea varicosa	Lavalleana.
6. — lupinaria	dione.	27. Rissoina Woodwardi	Catesbyana (St. Thomas).
7. Cyclina subquadrata	sp.	28. Alaba supralirata	tervaricosa.
8. Gouldia varians	Crassatella, sp. <i>D' Orb.</i>	29. Trivia subrostrata	sp.
9. Cardium consors	muricatum.	30. Ovulum variabile	subrostrata.
10. Lucina pectinata	pecten.	31. Strombus gracilior.....	pugilis.
11. Byssosarca solida	sp.	32. Terebra luctuosa	cinerea.
12. Avicula sterna	Atlantica.	33. Drillia incrassata	sp. (alabastra, or [?gibbosa]).
13. Planorbis tumens	affinis.	34. — aterrima	sp. [?gibbosa].
14. Physa aurantia	Maugeræ.	35. Crysallida communis.....	cancellatus.
15. — elata	sp.	36. Cerithiopsis assimolata ...	terebella.
16. Bulla Adamsi.....	striata.	37. Lathyrus tuberculatus ...	Knorrii.
17. Ianthina striolata	fragilis.	38. Olivella tergina	conoidalis.
18. Acmæa fascicularis	Antillarum.	39. Purpura biserialis	deltoidea.
19. — mitella	sp.	40. Pyrula patula.....	melongena.
20. Fissurella virescens, var. .	Barbadensis.	41. Murex recurvirostris	messorius.
21. Phasianella compta	sp.		

The Gasteropods maintain their majority.

D. *Analogous but quite distinct species.*

<i>Pacific.</i>	<i>West Indies.</i>	<i>Pacific.</i>	<i>West Indies.</i>
1. Tellidora Burneti	sp.	14. Odostomia vallata.....	sp.
2. Mactra exoleta	carinata.	15. Parthenia armata	gemmulosa.
3. Venus amathusia	dysera.	16. Chemnitzia, sp.....	sp.
4. Anomalocardia subrugosa	flexuosa.	17. Polynices uber	lactea.
5. Cardium elatum	serratum.	18. Ficula decussata.....	gracilis.
6. — aspersum	bullatum.	19. Mitra nucleola	granulosa.
7. Chiton sanguineus, <i>Rve...</i>	sanguineus, <i>Cutt.</i>	20. Cassis abbreviata	inflata.
8. Glyphis microtrema	sp.	21. — coarctata	testiculos.
9. Nerita Bernhadi	tessellata.	22. Oniscia tuberculosa	onicus.
10. Petaloconchus macro- phragma	varians.	23. Triton vestitus	pilearis.
11. Litorina Philippii	ziczac.	24. Nassa versicolor.....	ambigua.
12. Strombus Peruvianus ...	gigas.	25. Anachis costellata	terpsichore.
13. Conus purpurascens	achatinus.	26. Murex erosus.....	intermedius.
		&c.	&c.

It is probable that these lists will hereafter be greatly extended. The shells will be moved from one head to another, according to opinion and opportunities of judgment. Unfortunately, although the West Indian shells were among the first examined, they are to this day very little better known than by the Lamarekian conchologists. Most of the shells in collections are dead and worn, and the dredge has been but little used, especially in the great and doubtless prolific Gulf of Mexico*. At present our best sources of information are—(1.) The Sagra collection from Cuba (mostly poor shells), kept distinct in the British Museum. (2.) The St. Vincent collections of the late Rev. L. Guilding, scattered in the general collections of the British Museum. (3.) The very fine Barbadoes collections of Dr. Cutting in the Bristol Museum. (4.) Prof. Adams' sea-shells from Jamaica, which have not yet been fully tabulated, though several are described in the 'Contributions to Conchology.' Others also appear scattered in the 'Zeitschrift für Malacozoologie,' and other works. The Pacific shells having been so little known to the earlier writers, when there are analogous species, it is fair to suppose that the West Indian forms are intended. This is another reason for their careful study.

85. But the analogies of the Mazatlan shells extend further than the Caribbæan waters. Not merely some West Indian species, as *Nitidella cribraria*, found also in the Pacific, have made their way to the east shores of the Atlantic; but several Mazatlan forms, not yet quoted from the West Indian islands, unexpectedly reappear on the Senegambian and Guinea coast, as though they loved western shores.

Species ? common to the West (Pacific) American shores and Africa.

W. A. = West Africa. S. A. = South Africa. E. A. = East Africa (Capt. Owen, B.M.).

West America.	Africa.
1. Saxicava arctica	arctica, S. A.
2. Kellia suborbicularis	suborbicularis, W. A.
3. Isognomon Chemnitzianum	Chemnitzianum, W. A.
4. Lithophagus aristatus	caudigerus, W. A.
5. Ostrea iridescens	spathulata, W. A.†
6. — conchaphila	conchaphila, W. A.
7. Placunanomia pernoïdes	pernoïdes, W. A.
8. Crepidula unguiformis	Goreensis, W. A.
9. — aculeata	aculeata, S. A.
10. Hipponyx antiquatus	antiquatus, W. A.
11. Bankivia varians‡	variens, S. A.
12. Natica maroccana (Pritchardi)	maroccana, W. A.§
13. Marginella cærulescens	prunum, W. A.
14. Nitidella guttata	cribraria, W. A.
15. Purpura pansa	patula, W. A.

* If the "Central American difficulty" should ever draw our Transatlantic brethren, Messrs. Rich, Jewett and Green, to the Caribbæan seas, it is hoped that they will explore them well; an occupation surely more worthy of a philosopher than killing his brothers; and a "difficulty" requiring solution quite as much as the ownership of the Mosquito territory.

† It is believed that *Petricola robusta* was found in the African oysters; but this only rests on circumstantial evidence: v. B.M. Mazatlan Cat. p. 19.

‡ The solitary young specimen of this characteristic species in the Reigen collection, was taken from the debris of a *Spondylus*, which is a sea (not shore) shell.

§ Having very carefully compared large numbers of the West American shells (*Pritchardi*, Forbes) with a fine series from Gambia, sent by Chief Justice Rankin to the Bristol Museum, I cannot but regard them as identical, both as to shell, operculum, and similarity of variations. The shells called *unifasciata* may or may not belong to this species: several unquestionably do.

The following species might be divided into groups answering to B, C, and D of the West Indian parallels.

1. *Discina Cumingii*..... striata, W. A.
2. *Pholadidea melanura* clausa, W. A.
3. *Parapholas acuminata* branchiata, W. A.
4. *Tellina rufescens* perna, *Spl.* (Madagascar.)
5. *Iphigenia lævigata* sp., W. A. (Bristol Mus.)
6. *Trigona*, var. *Hindsii* tripla, W. A.
7. ——— *planulata*..... ? bicolor, W. A.
8. *Diplodonta semiaspera* circularis, W. A.
9. *Pectunculus multicostatus* inæqualis (*Krauss* not *Reeve*), S. A.
10. *Arca grandis* senilis, W. A.
11. *Gadimia pentagoniostoma* afra, W. and S. A.
12. *Crepidula onyx** hepatica, *Krauss*.
13. *Cerithium maculosum*..... adustum (? Red Sea).
14. ——— *stercus-muscarum* ocellatum, E. A.
15. *Terebra armillata*..... interstincta, W. A.
16. *Euryta fulgurans*..... sp., E. A.
17. ——— *aciculata* ? *Cosentini*. (Mediterranean, &c.)
18. *Aragonia testacea* hiatula + *Steeriæ*, W. A.
19. *Harpa crenata* rosea, W. A.
20. *Vitularia salebrosa* vitulina, W. A.
21. *Purpura biserialis*..... hæmastoma, W. A.

The comparative preponderance of bivalves in these lists is still apparent.

86. The *Kellia suborbicularis*, *Lasea rubra*, *Saxicava arctica*, and *Hydrobia ulvæ*, of the Gulf, even belong to the British fauna. The *Dione Chioneæ* is so like the *D. Chione* of our southern shores, that Mr. Sowerby at first united them, quoting under *Cytherea Chione*, "Mr. Cuming's specimens are from Mazatlan," while the dull S. Pacific specimens were described as *C. squalida*, and the banded ones of the same species (by Dr. Gray) as *C. biradiata*. The *Cæcum glabrum* of the British, and *C. glabriforme* of the Mazatlan seas are almost indistinguishable. The same may be said of the form *Leiostraca distorta*. The *Cerithiopsis tubercularis* and *C. tuberculoides* are most closely allied; as are also *Byssarca mutabilis* and *tetragona*, *B. solida* and *lactea*, *Tellina donacina* and *donacilla*, *Modiola modiolus* and *capax*, *Thracia squamosa* and *villosuscula*, *Acmæa mesoleuca* and *testudinalis*, *Galerus mammillaris* and *Sinensis*, *Ianthina striolata* and *communis*, *I. prolongata* and *pallida*, *Jeffreysia bifasciata* and *opalina*, and *Nassa crebristriata* and *reticulata*. The *Gouldia varians* may compare with *Astarte triangularis* and *Tornatina infrequens* with *Cylichna mammillata*. The reappearance of the rare genera *Montacuta*, *Lepton*, and *Barleia*, is also worthy of notice.

87. Besides these analogies with the Atlantic shells, there are a few singular exceptions to the general dissimilarity with the Asiatic and Indo-Pacific faunas. Thus we have the Japanese *Cytherea petichialis* reappearing at Mazatlan; and *Nassa acuta* most closely resembling an Australian species in Mr. Cuming's collection. The *Oliva Duclosi* is quoted from the Pacific islands; as are also the ubiquitous *Natica maroccana* and *Nitidella cribraria*, the pelagic *Ianthina striolata*, the sedentary *Hipponices barbatus* and *Grayanus*; and a few other species, concerning which there is a fair chance of inaccuracy, especially in shells from "Lord Hood's Island."

88. Of the land and freshwater shells little is yet known except those brought from Oregon. These are of a different type from those of the

* Dr. Dunker also quotes *Cr. Peruviana* = *dilatata* from the Guinea coast. His solitary specimen may be from ballast; but it has been plentifully received as from Mauritius.

Atlantic states, and have more the general appearance of old world forms. The few known from Mazatlan are essentially tropical in type, and differ from those found on the east of the Rocky Mountains.

89. The Bryozoa are included in this Report, because it appears universally acknowledged that they have more in common with the lower Tunicata and the Molluscan type in general, than with the Radiata. What few are known have been described by Mr. G. Busk, who regards one species as identical with a British form, another with a specimen dredged by Mr. Darwin, from 96 fms. in Chiloë, a third with a tertiary fossil from Vienna, and the rest as new.

90. Of the Pteropods nothing is known; of the naked Gasteropods only a few forms from Sitcha and Oregon; of the Palliobranchiata scarcely any; and of the Cephalopods only two, not characterized, from the Behring Sea.

91. It would be extremely interesting, after comparing the West American shells with other existing faunas, to carry our researches back in time, and compare them with the fossils known to occur on the same coasts. For such inquiries, however, there exist scarcely any materials. All that we know is a little concerning the fossils of Oregon in the tenth volume of the 'U. S. Exploring Expedition,' Geology, by Jas. D. Dana. In Appendix I. p. 723, the following fossil shells from the sandstone of *Astoria* are described.

Astorian fossils.

<i>Teredo substriata</i> , Conr. [= <i>Dentalium</i> *.]	<i>Arca devincta</i> , Conr.
<i>Mya abrupta</i> , Conr. [? <i>Panopæa</i> .]	—, sp.
<i>Thracia trapezoides</i> , Conr.	<i>Pecten propatulus</i> , Conr. [B.M.]
<i>Solemya ventricosa</i> , Conr.	<i>Terebratula nitens</i> , Conr.
<i>Tellina arcata</i> , Conr.	<i>Bulla petrosa</i> , Conr.
— <i>emacerata</i> , Conr.	<i>Crepidula prurupta</i> , Conr.
— <i>albaria</i> , Conr.	—, sp.
— <i>nasuta</i> , Conr.	<i>Turritella</i> , sp.
— <i>bitruncata</i> , Conr.	<i>Cerithium mediale</i> , Conr.
? <i>Donax pretexta</i> , Conr. [? cast of <i>Solemya</i> .]	? <i>Rostellaria indurata</i> , Conr. [resembles
<i>Venus bisecta</i> , Conr.	<i>Strombus vittatus</i> .]
— <i>angustifrons</i> , Conr.	<i>Sigaretus scopulosus</i> , Conr. [? <i>Naticina</i> .]
— <i>lamellifera</i> , Conr.	<i>Natica sawæa</i> , Conr.
— <i>brevilineata</i> , Conr.	? <i>Dolium petrosus</i> , Conr.
<i>Lucina acutilineata</i> , Conr.	? <i>Buccinum devinctum</i> , Conr.
<i>Cardita subnta</i> , Conr.	<i>Fusus geniculus</i> , Conr.
<i>Nucula divaricata</i> , Conr.	— <i>corpulentus</i> , Conr.
— <i>impressa</i> , Conr. [<i>Leda</i> .]	<i>Nautilus angustatus</i> , Conr. [? = <i>N.</i>
<i>Pectunculus patulus</i> , Conr.	<i>zigzag</i> .]
— <i>nitens</i> , Conr. [resembles <i>Limopsis</i> .]	

The "Dolium" is interesting from its close resemblance to the anomalous *Argobuccinum nodosum* = *Cassidaria setosa*, Hinds.

Of the tertiary fossils of the United States, while many Atlantic species occur, none have been noticed exclusively Pacific. There are some few which are found in both oceans; and a *Vermetus*, among Mr. Nuttall's Claiborne fossils, closely approaches *V. eburneus*, while it differs from the West Indian forms. These fragments of information are all that are yet accessible.

92. The object of this Report has been so to condense and arrange the existing materials that those who consult it may know what has been done, and may have the means of deciding on the value to be attached to different sources of information. Thus they may be enabled to begin where the writer

* The notes in [] are added by Mr. S. P. Woodward, who kindly furnished the above list.

leaves off, and not spend precious time in working out afresh what has already been ascertained*. He has stated his opinions with some freedom; because it was thought that an expression of the difficulties encountered in the prosecution of the subject and of their causes, might (1) put other students on their guard, and (2) contribute somewhat towards their removal. They will be received simply as the judgments of a learner who came fresh to the subject, without previous acquaintance with books and naturalists. His object has been, not himself to build, but to clear away some of the encumbrances, lay part of the foundations, and collect a few of the materials, ready for the great architects of science to erect the beautiful edifice of harmonious knowledge. The first scientific explorer of these regions, the venerable Baron Humboldt, still lives to enjoy the earthly rest after his labours: but the early death of so many whose names have been quoted, of Eschscholtz, of Hinds, of Souleyet, of Reigen, of Adams, and of Forbes, urges us to "work while it is day"; that we may prepare for that state where ignorance shall have passed away, and where "we shall know even as also we are known."

* The Plates appended to this Report, at the recommendation of the Committee, are intended to illustrate some of the principal variations observed in individuals of the same species, especially when the forms have been described as different species, or represent the characters of different (so called) subgenera. They are to be regarded as portraits, not photographs of the Mazatlan shells in the British Museum Collection.

Warrington, Aug. 8th, 1856.

Fig. 1.

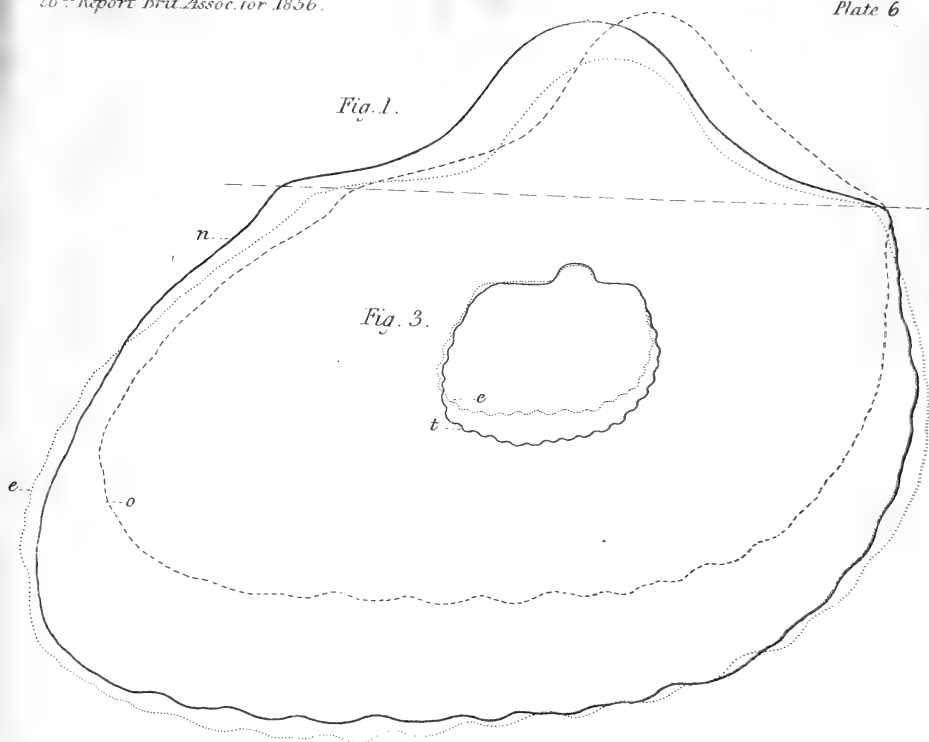


Fig. 2.

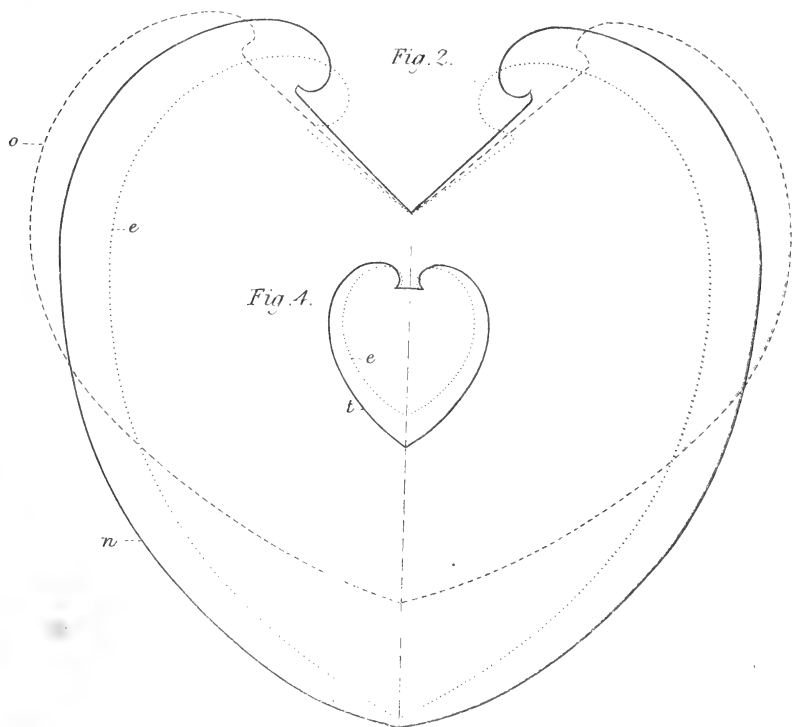
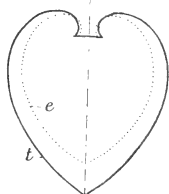
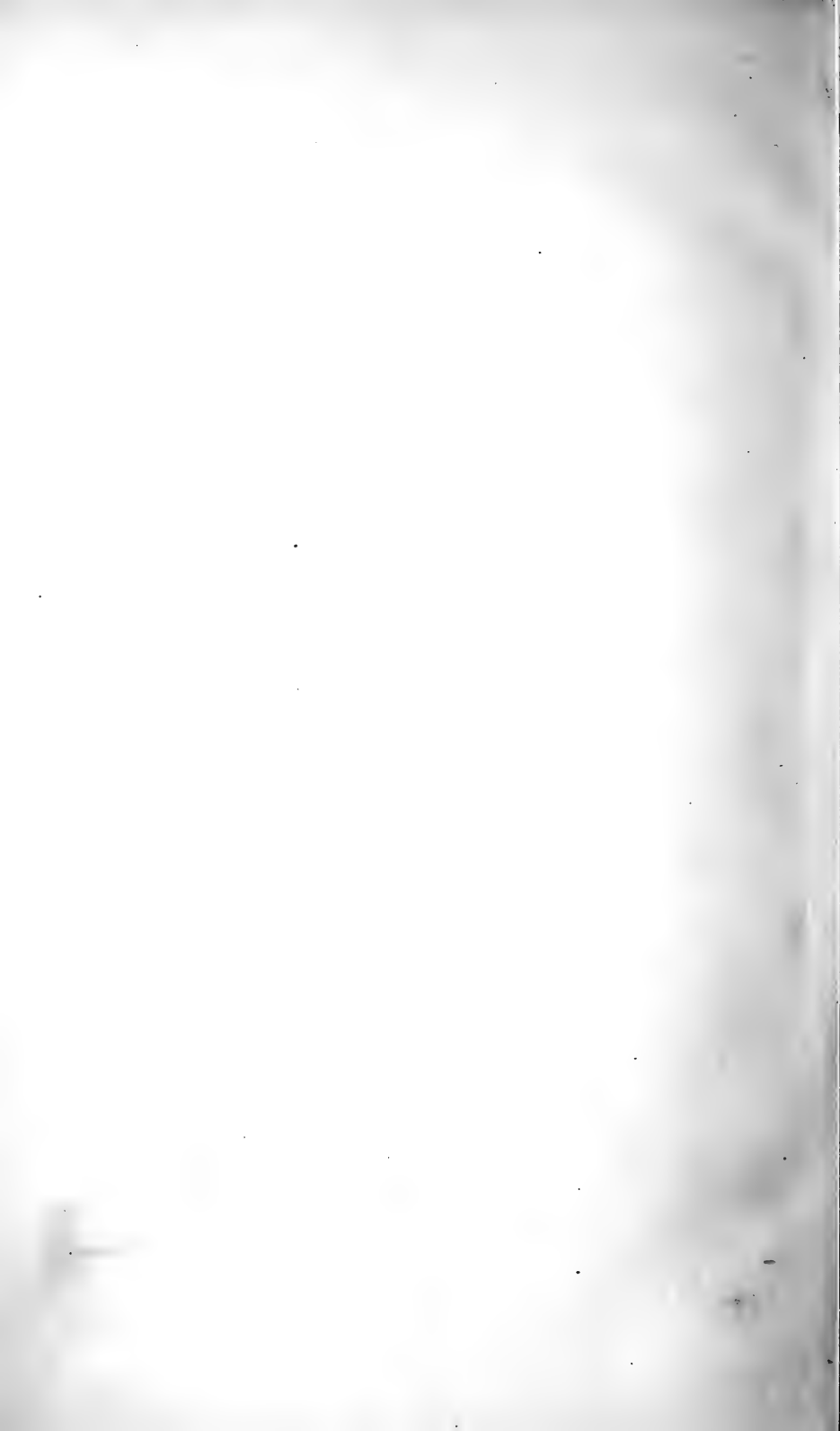
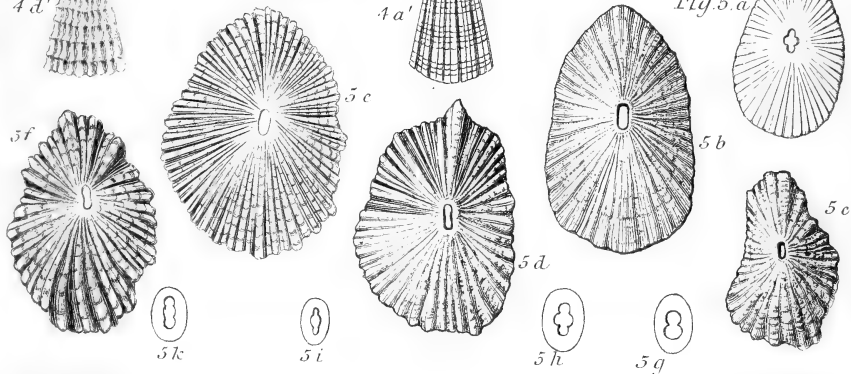
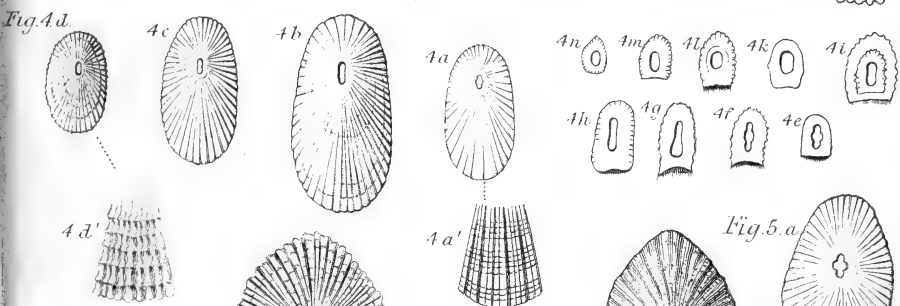
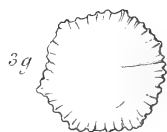
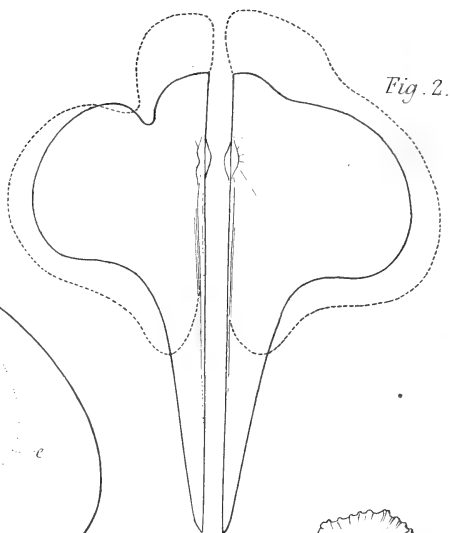
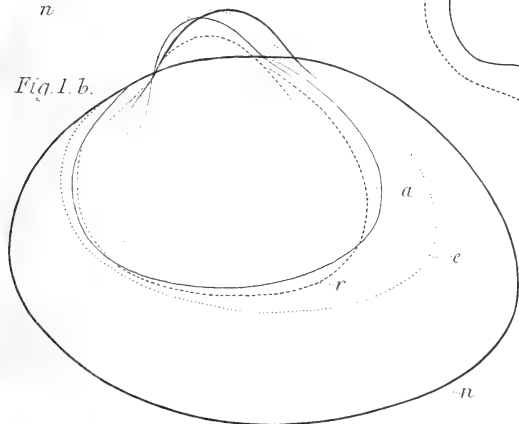
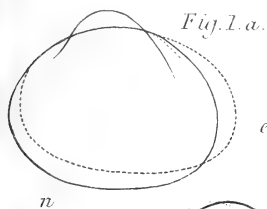


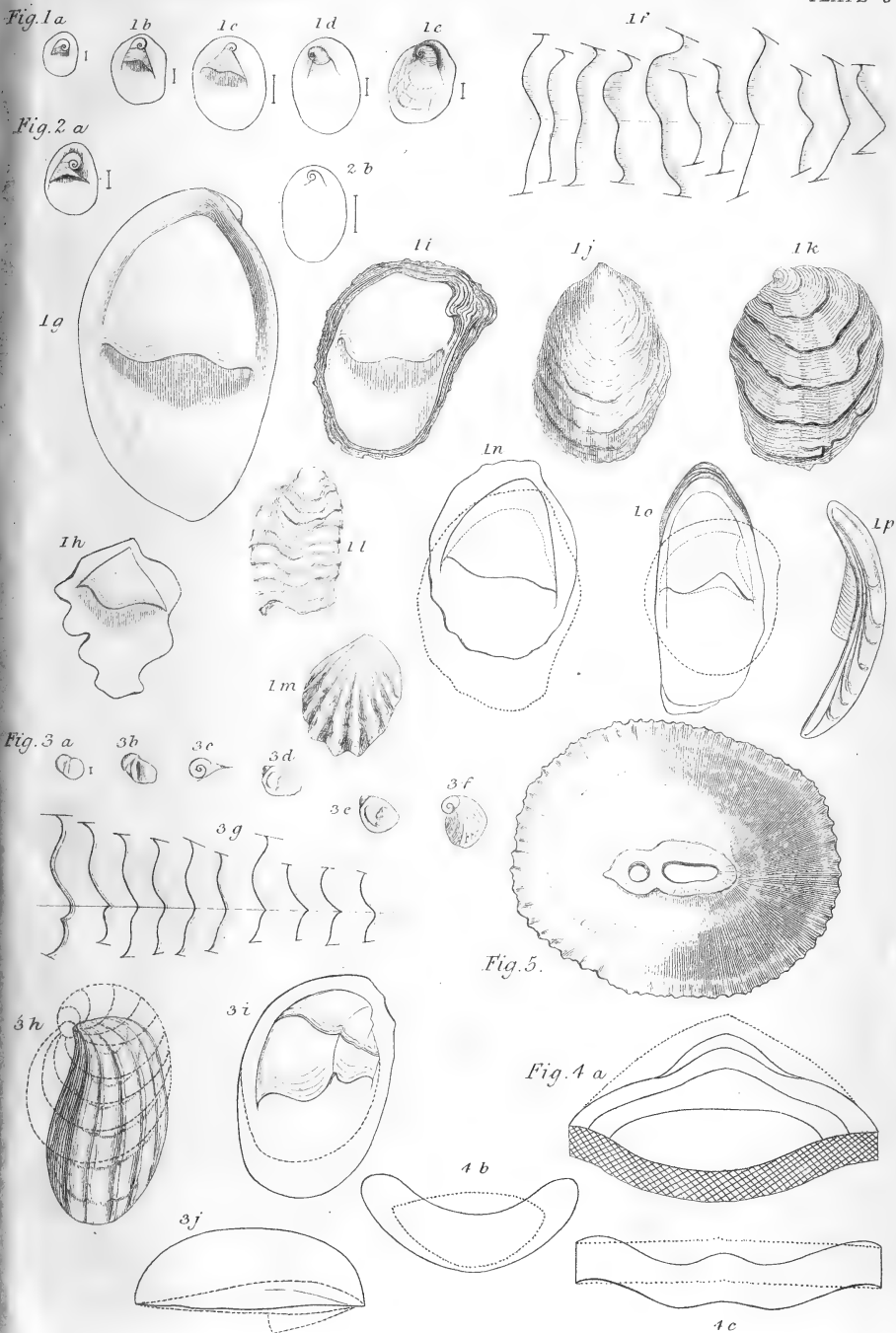
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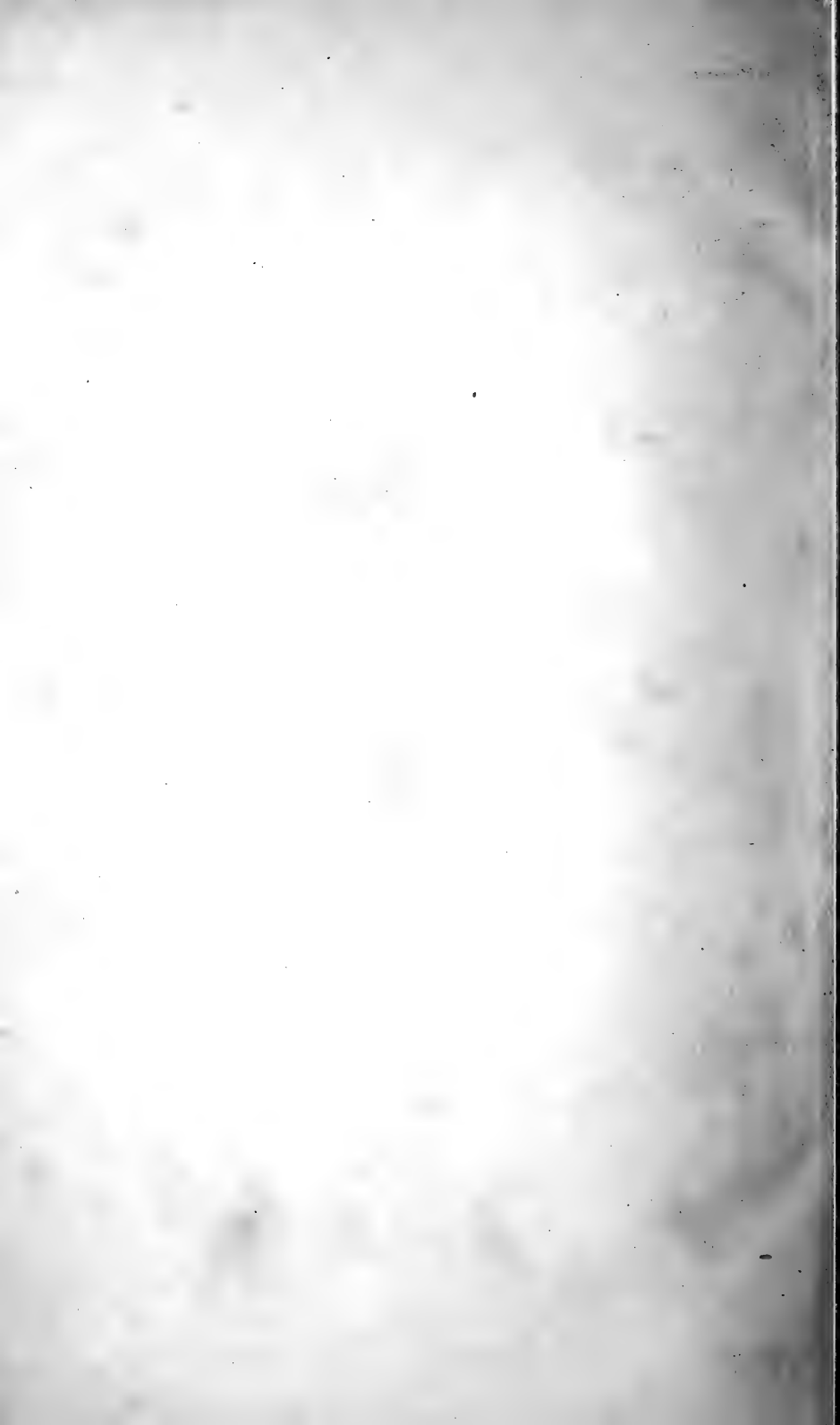


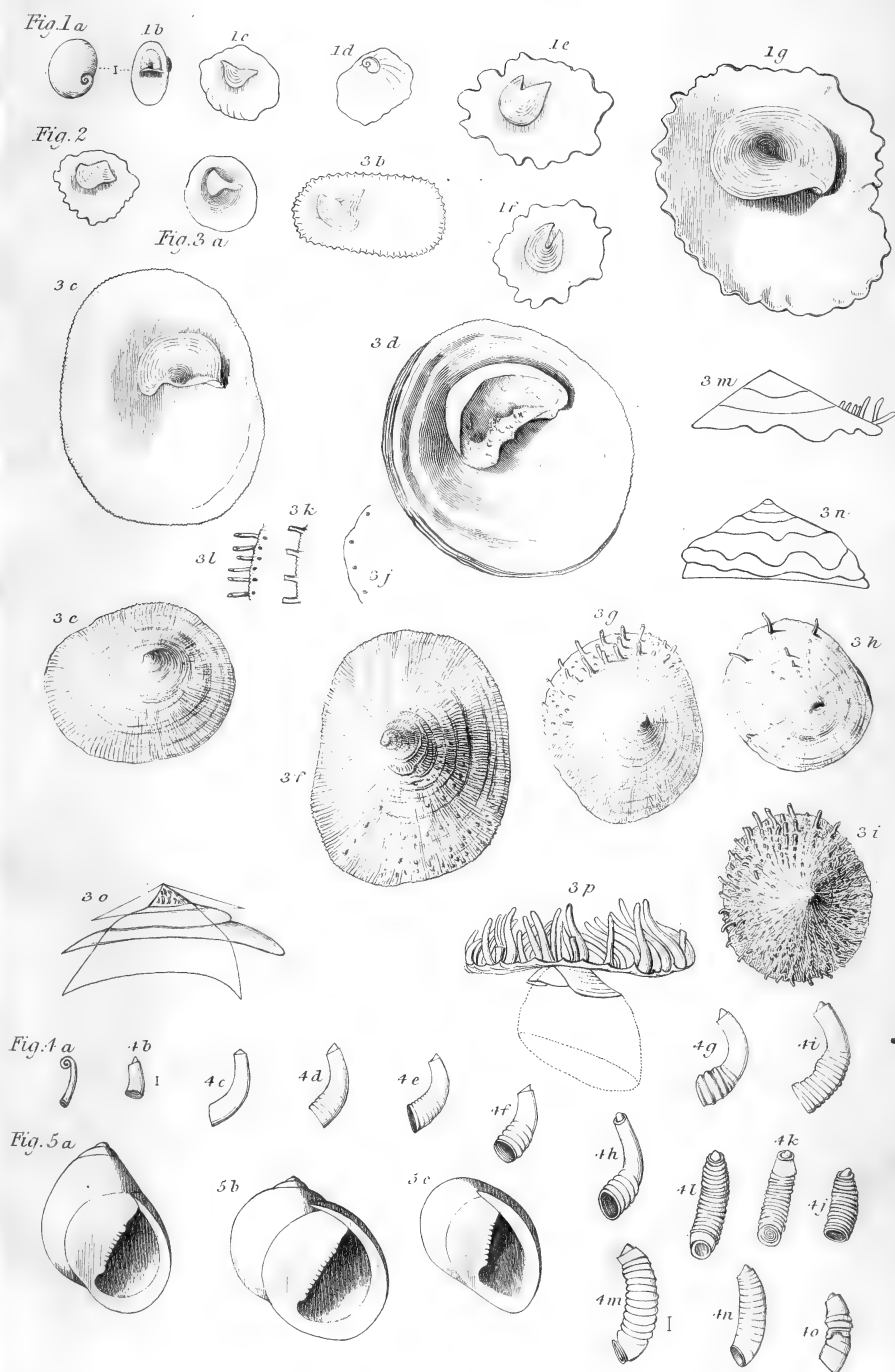












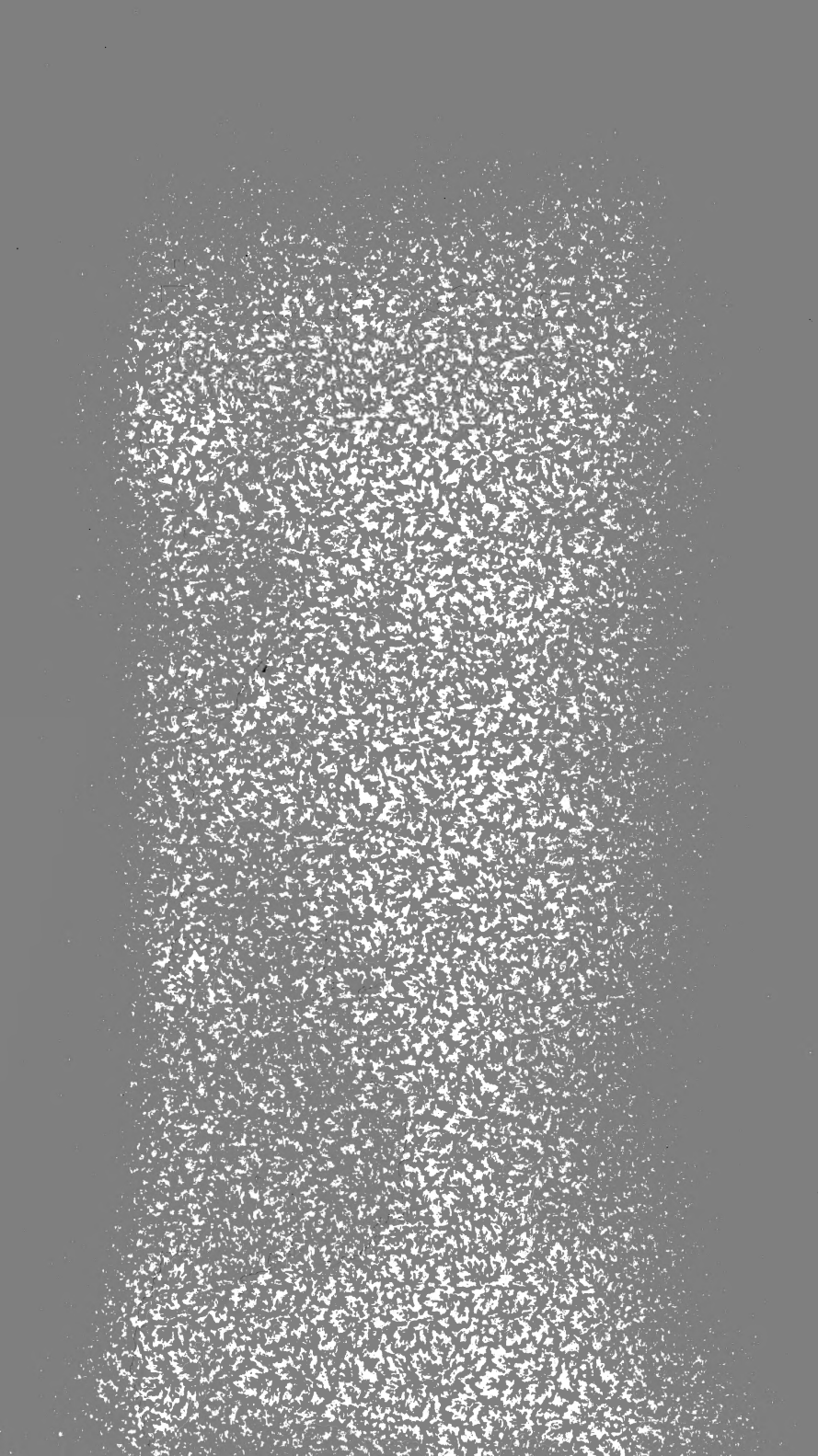






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